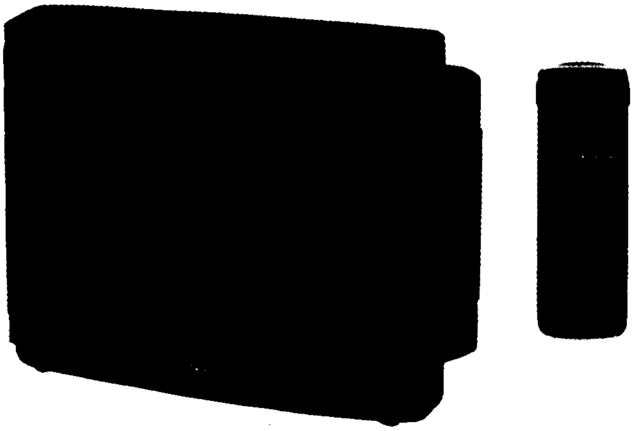
KV-A2123E/A2523E/A2923E
RM-816

SERVICE MANUAL

Spanish Model
KV-A 2123 E
Chassis No. SCC-E22X-A
KV-A2523 E
Chassis No. SCC-F12A-A
KV-A 2923 E
Chassis No. SCC-E22Y-A



AE-1C CHASSIS

MODELS OF THE SAME SERIES	
KV-A2123E/A2523E/A2923E	
KV-A2113E/A2513E	
KV-C2523E/C2533E	

SPECIFICATIONS

【KV-A2123E/A2523E/A2923E】

Television system	B/G/H
Color system	PAL, SECAM, NTSC3.58, NTSC4.43
Stereo system	GERMAN/NICAM stereo
Channel coverage	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10
Picture tube	Hi-Black Trinitron tube Approx. 54.5 cm (21 inches) (Approx. 51 cm picture measured diagonally) 100 ° -degree deflection Approx. 63.5 cm (25 inches) (Approx. 59 cm picture measured diagonally) 110 ° -degree deflection Approx. 72.4 cm (29 inches) (Approx. 68 cm picture measured diagonally) 110 ° -degree deflection
Inputs	⊖-1 21-pin connector: CENELEC standard including RGB input. ⊖-2 21-pin connector: including S video input Flont : ⊖-3 Audio and video input jacks: phono jack. Including S Video input Y: 1Vp-p ± 3dB 75ohm C: 0.3Vp-p ± 3dB 75ohm

Outputs	21-pin connector: CENELEC standard Headphones jack: stereo minijack External speaker terminals: 2-pin DIN Audio output jacks: phono jack (output dependent upon TV settings)
Sound output	30 W + 30 W
Power consumption	92 Wh (KV-A2123 E) 110 Wh (KV-A2523 E) 112 Wh (KV-A2923 E)
Dimensions incl.speakers	Approx. 615 × 439 × 448 mm (w/h/d) (KV-A2123 E) Approx. 677 × 501 × 481 mm (w/h/d) (KV-A2523 E) Approx. 761 × 568 × 512 mm (w/h/d) (KV-A2923 E)
Weight incl.speakers	Approx. 28kg (KV-A2123 E) Approx. 40kg (KV-A2523 E) Approx. 55kg (KV-A2923 E)

-Continued on next page-

MICROFILM

TRINITRON® COLOR TV

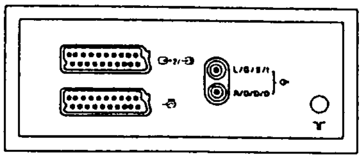
SONY®

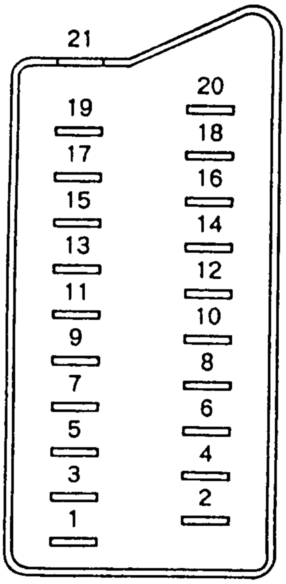
【RM-816】

Remote control system	infrared control
Power requirements	3 V dc 2 batteries IEC designation R 6 (size AA)
Dimentions	Approx.75×221×23 mm (w/h/d)
Weight	Approx.230 g (including Batteries)

Design and specifications are subject to change without notice.

21 pin connector (→⊡, ⊡↔2/→Ⓢ)





Pin No.	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output Impedance: Less than 1kohm*
2	○	○	Audio input B (right)	Standard level: 0.5Vrms Input Impedance: More than 10kohms*
3	○	○	Audio output A (left)	Standard level: 0.5Vrms Output Impedance: Less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level: 0.5Vrms Input Impedance: More than 10kohms*
7	○	●	Blue input	0.7V ± 3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5 – 12V): Part mode Low state (0 – 2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2 nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal: 0.7V ± 3dB, 75ohms, positive
12	○	○	Open	
13	○	○	Ground (red)	
14	○	○	Ground (branking)	
15	○	–	Red input	0.7V ± 3dB, 75ohms, positive
	–	○	(S signal) croma input	0.3V ± 3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1 – 3V) Low state (0 – 0.4V) Input impedance: 75ohms
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
20	○	–	Video input	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
	–	○	Video Input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
21	○	○	Common ground (plug, shield)	

○ connected ● unconnected (open) * at 20Hz – 20kHz

4 Pin Connector (⇆)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync $0.3V^{3}_{+10}$dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

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(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

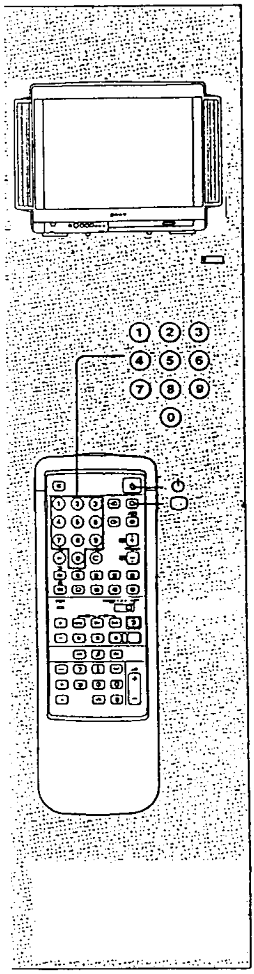
SECTION 1
GENERAL

1-1. TV CHANNEL PRESETTING

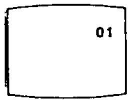
After installing the TV set, TV channels must be preset.

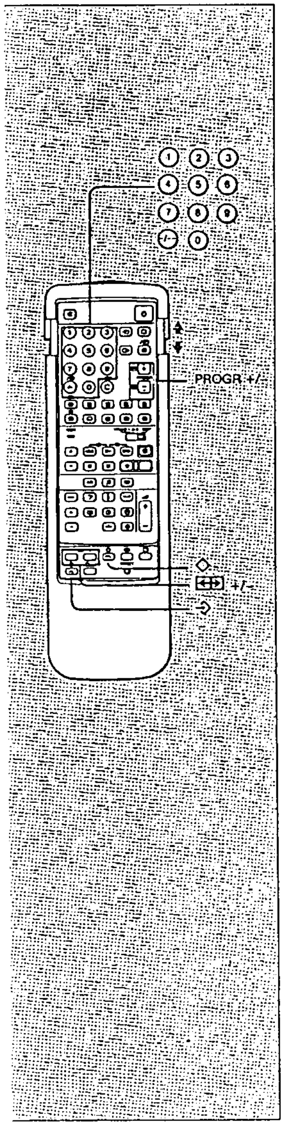
TV broadcasting stations broadcast their programmes on certain fixed frequencies (channels). In order to receive these programmes it is necessary to search for the relevant broadcasting station and to set record it as a channel. The "programme number" is the number that the user decides to associate with a certain channel.

For channel settings there are 60 positions available in the memory. In this way all stations broadcasting within the user's country can be received and recorded as a channel.



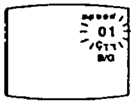
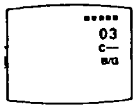
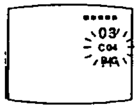
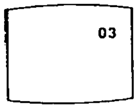
Turning the TV unit ON and OFF

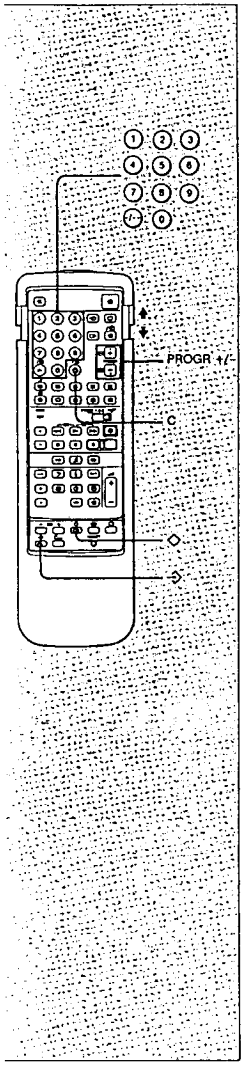
Operation	Result
1 Press ⏻ on the TV set. ⏻	The TV set will come on. **Note:** If no picture appears on the screen, the TV set is in the stand-by mode. In this case follow instructions given in step 2.
2 Press ▭ or one of the selection numbers of the remote control unit. ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪	 A programme number appears on the screen.
Temporarily turning off the TV set: Press ⏻ on the remote control unit.	The TV set will enter the stand-by mode. It can be turned on again by pressing the ▭ button, or the selection button of the remote control unit.
Turning off the TV set definitvely: Press ⏻ on the TV set.	The TV set will be turned off.



TV channels automatic presetting

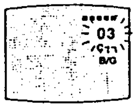
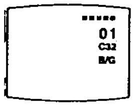
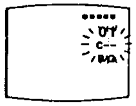
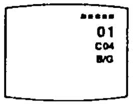
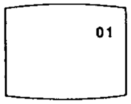
If the numbers to be associated with certain TV channels are already known, the following explanation can be skipped. In this case go directly to the section "TV channels direct selection".

Operation	Result
1 Press ⇨ to begin the preselection. ⇨	 The programme number flashes.
2 Press PROGR + /– buttons of the remote control unit to select the channel number of the broadcasting station you want to memorize. + PROGR – ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ -/-- ⓪ NOTE: To select a 2-figure number press the -/-- button. E.g., if you wish to select number 23, press -/-- first, and then 2 and 3.	 The programme number on the screen changes. NOTE: In case of a mistake, the "X" letter appears. Repeat once more the operation of step 2.
3 To search for broadcasting stations press ⊞ + and – buttons. – ⊞ +	 When a broadcasting station is tuned correctly, the search will stop. If you want to skip it, press ⊞ + or – again.
4 Press ◇ to memorize the channel to that the broadcasting station is tuned. ◇	 All data visualized under the channel number disappears from the screen.
5 To memorize other broadcasting stations repeat steps from 1 to 4.	

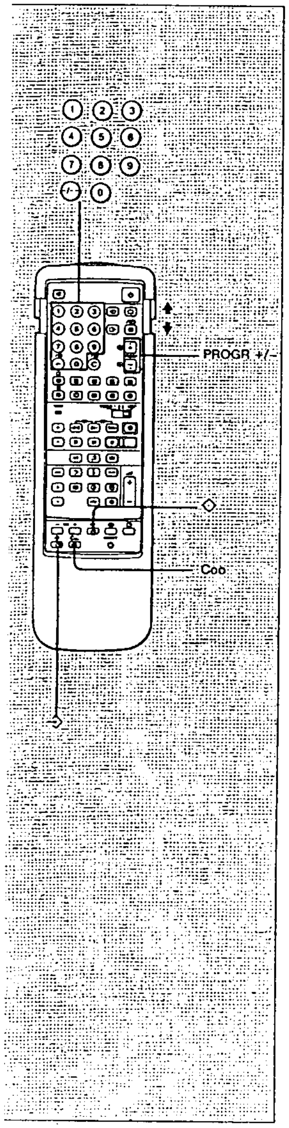


Direct TV channel setting

Direct presetting of TV channels is faster than automatic presetting. With this function any broadcasting station can be searched for and set as the desired channel.

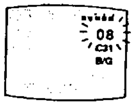
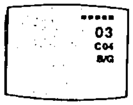
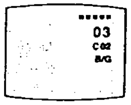
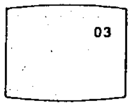
Operation	Result
1 Press ⇨ to begin the presetting. ⇨	 The programme number begins to flash on the screen.
2 Press the PROGR +/– buttons of the remote control unit to select the channel number under which you want to set the broadcasting station. ⊞ PROGR ⊟ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ -/- ⓪ Note To select a 2-figure number press -/-- button. E.g., if you wish to select number 23, press -/-- first, and then 2 and 3.	 The programme number on the screen changes. **Note** In case of mistake, the "X" letter appears on the screen. Repeat once more the operation of step 2.
3 Press C. If you wish to select a cable station press C twice. Ⓒ	 Indication "C--" ("S--" for cable stations) flashes on the screen
4 By using the number buttons of the remote control unit select the channel number, always with two figures (for "4" press "04"). ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ Note: Press the second figures within 5 seconds from the first. After 5 seconds the operation is canceled.	 The channel number changes on the screen.
5 Press ◇ to memorize the channel to which the station is tuned. ◇	 All indications, except the programme number, disappear from the screen.

To memorize other broadcasting stations repeat the above procedure.



Exclusion of programmes

Once all desired stations have been memorized, unoccupied channel numbers, with stations of inferior quality signals can be excluded. The undesired channels can be excluded by using the PROGR + and – buttons.

Operation	Result
1 Press ⇨ to begin presetting. ⇨	 The programme number begins to flash on the screen.
2 By acting on the PROGR + and – buttons, or on the number keys of the remote control unit, select the programme number you wish to exclude. ⊞ PROGR ⊟ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ -/- ⓪	 The programme number changes.
3 Press Coo. Coo	 Under the programme number, the preceding channel number appears.
4 Press ◇. ◇	 All indications under the programme number disappear from the screen. The excluded programme number will be memorized.

NoteNote
Undesired channels can be excluded only by using PROGR + and – keys.
Excluded programme numbers appear on the screen if you press the number keys of the remote control unit.

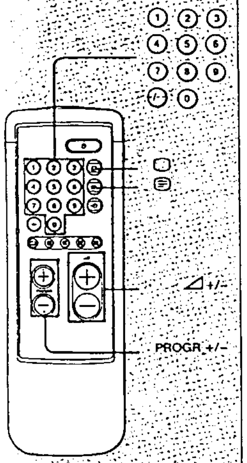
Use of additional tuning functions

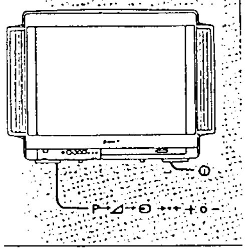
Temporary channel tuning

It is possibile to temporarily memorize a channel, even if it has not been preset.

Operation	Result
1 Press C. Press C twice for a cable station.	"C" ("S" for cable stations) indication appears on the screen.
2 Using the number keys of the remote control unit select the channel number, always with two figures (e.g., "04" for channel "4").	The channel will be received, but it will not be set as a programme number.

1-2. BASIC FUNCTIONS



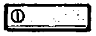
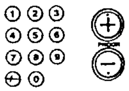
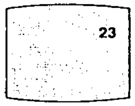


This section of the manual explains the use of the two fundamental functions of the TV set, selection of TV programmes and volume control.

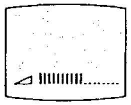
Use the "simple" side of the remote control unit.

Programme selection

Before selecting programmes make sure that TV channels have been memorized.

Operation	Result
1 Turn the TV set on. 	
2 Press PROGR +/– buttons or the number keys of the remote control unit. To select a 2-figure number press -/-- button. E.g., if you wish to select number 23, press -/-- first, and then 2 and 3. 	 The selected programme number appears on the screen.

Volume control

Operation	Result
Press ⊿ + or –.	 The volume indication appears on the screen.

Use of additional functions

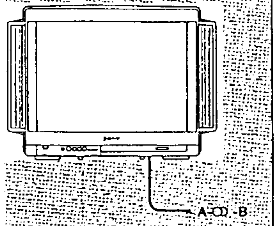
Use of other functions with the TV set buttons

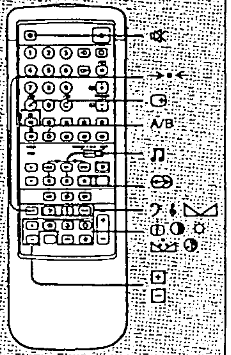
It is also possible to select programmes and to adjust the volume by using P→⊿→⊖ and →•← + or – buttons, located on the front panel of the TV set.
In this case, press first P→⊿→⊖ until the indication P (channel) or ⊿ (volume) appears on the screen, and then press →•← + or – buttons.

Use of teletext service

Press ⊜. To revert to the TV mode, press ▢. For further information on the teletext service.

1-3. SPECIAL FUNCTIONS





This section explains the use of functions for adjusting pictures and sound; for inserting on the screen the name of a channel; and for fine tuning of a channel.

Use the "complete" side of the remote control unit.

Use of special functions

The following functions can be used.

Function	Operation	Reset
Indication display	Press ⊡	Press ⊡ again.
Sound muting	Press 🔇	Press 🔇 again.
Language selection for bilingual programmes.	Press A/B. The selected language is displayed by the relevant indication on the screen.	Press A/B.
Sound adjustment for music programmes.	Press ♫	Press ♫ again.
Use of special sound effects.	Press ⊖	Press ⊖ again.
Time display (only during teletext broadcasting).	Press ◎	Press again.

Picture and sound adjustment

Although picture and sound adjustment has already been performed in the factory, it is still possible to make them more suitable to one's own taste. The following table shows all available functions and their effects.

Operation

Function	Controls to be used	Result
Button selection	◕◑☼⋈⦶	The symbol appears on the screen.
Adjustment of the selected function	⊞⊟	The level has been adjusted.

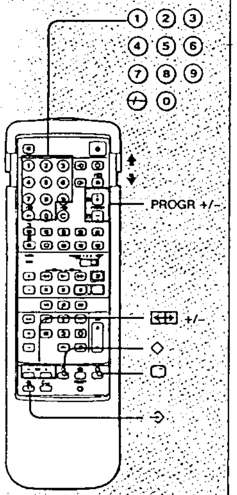
Picture adjustment

Adjustment	Symbol	Result (+ ↔ –)
Colour	◕	Further or lesser colour intensity
Contrast	◑	Further or lesser contrast
Brightness	☼	Bright (↔) dark
Hue (for NTSC only)	⩍	More red ↔ more green
Picture definition	⦶	More definition ↔ less definition

Sound adjustment

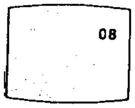
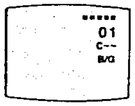
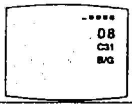
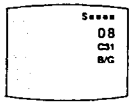
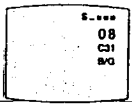
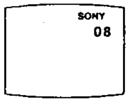
Adjustment	Symbol	Result (+ ↔ –)
Bass	𝄢	More of low frequencies ↔ less of low frequencies
Treble	𝄞	More of high frequencies ↔ less of high frequencies
Speakers balance	⋈	Volume increase from right speaker ↔ Volume increase from left speaker

Reversion to the original adjustment
Press →•←.



Broadcasting station identification

By associating a name with a certain broadcasting station it is possible to avoid having to remember, each time, in which channel number that particular station has been memorized.
Five different characters are available for station identification.

Operation	Result
1 By using PROGR + or –, or the number keys of the remote control unit, select the programme number to be set for identification.	 The programme number to be set for identification appears on the screen.
2 Press ⇾	 The number flashes on the screen.
3 Press ▭	 The first indication line flashes on the screen.
4 Using the ⊞ + or – buttons select a letter of the alphabet, a number, or a blank space.	 Alphabet letters, numbers or a blank space ("-") appear on the screen, in that order.
5 Press ▭	 In this way the first character has been set, and the following position now flashes on the screen.
6 Repeat steps 4 and 5, and fill all five available spaces.	
7 Press ◇ .	 All indications under the programme number disappear from the screen. All indications remaining on the screen have been memorized.

Manual fine tuning

If the picture is not perfect, it is possible to fine tune it manually.

Operation	Result
Press ⊞ + or – repeatedly until the picture is at the optimum.	The Indication →F← appears on the screen.
Press ⇾ to start preselection.	The programme number starts flashing on the screen.
Press ◇ .	Manual fine tuning has been memorized.

Note: Manual fine tuning will be reset when the channel is selected again.

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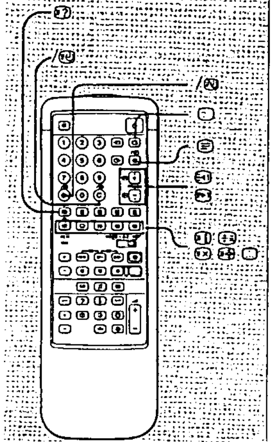
1-4. USE OF THE TELETEXT SERVICE



Through the teletext service a great deal of information can be received at any time. Broadcasting stations make this service available through TV broadcasts. To use the teletext service, use the green keys on the "complete" side of the remote control unit. When the "simple" side of the remote control unit is used, only the basic functions are available.

How to display teletext service

Operation	Result
1 Select the channel you want to watch.	The channel changes on the screen.
2 Press ⊜	If there is no teletext signal, the indication "Page 100" appears on the screen.
3 Use the number keys of the remote control unit to insert the three figures corresponding to the desired teletext page. **Note** In case of a mistake, press any three numbers, and then repeat the operation with the correct numbers.	The selected page number appears on the screen. After a few seconds, the selected page appears on the screen.

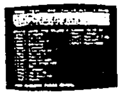
To revert to normal TV programmes:
Press ○.

To change teletext channel:
First press ○ to revert to the TV mode, and then repeat procedure steps 1 to 3.

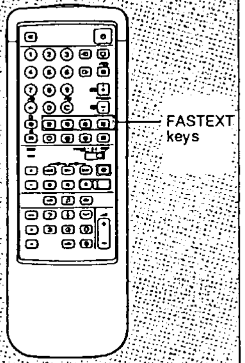
Note: A weak TV signal may cause troubles in the use of teletext.

Use of special teletext functions

Required function	Operation	Result (on the screen)
Page index required.	Press ⊡ (INDEX).	Page index appears.
Sub-pages required (page 888).	Press ○	The sub-page appears (page 888).
Access to previous or following pages.	Press ⊡ (PAGE +) or ⊡ (PAGE –).	The preceding or the following page appears.

Required function	Operation	Result (on the screen)
Superimposition of the teletext on the TV programme.	In the TV mode, press ⊜ twice. To revert to the normal teletext function press ⊜ again.	Teletext information will appear superimposed on the TV programme.
To prevent page changes due to page up-dating.	Press ⊜ (STILL). Press ⊜ (TXT/MIX) to revert to the normal function.	The ⊜ (STILL) symbol appears on the screen.
Magnification of teletext characters.	Press once to magnify the upper half of the screen. Press twice to magnify the lower half of the screen. Pressing the button three times the normal vision is restored.	The upper or the lower half of the page is magnified.
Display of hidden information (answers to quizzes, ecc.).	Press ⊜ (RIV). Press again to hide the answers.	 The information is displayed.
Watching a programme while the teletext searches for the required page.	1. Ask again for the page.	The number is displayed.
	2. Press ⊜	TV programme is displayed.
	3. When the required page has been found, the page number will be displayed.	P201
	4. Press ⊜ to display the page.	The desired page will be displayed.
Display of a page at a preset time.	1. Request the page.	The selected page will be displayed.
	2. Press ⊜ (MEM.T).	In the lower part of the screen the indication "T****" appears.
	3. Set the required time by using the number keys, and by inputting four figures (e.g. 0730 for "7:30").	The required time is displayed on the screen.
	To watch TV programmes until a preset time Press ⊜ (CANC.). At the required time, the selected page appears in the upper part of the screen. Press ⊜ to display the page. **To cancel the request** Display the teletext page and then press ⊜ (CANC.M.).	

Note: Depending on the teletext service, certain functions may not be available.



Use of the FASTEXT function

The FASTEXT function allows rapid access, at the touch of a single button, to the teletext functions. In the lower part of the screen, a colour coded index will be displayed when a FASTEXT teletext page is broadcasted. Each colour corresponds to the coloured keys on the remote control unit.

Operation

Operation	Result
Press one of the coloured key on the remote control unit corresponding to the coloured indications of the FASTEXT teletext page.	The selected teletext page appears on the screen.

Note

The correct use of the FASTEXT teletext function depends on the signal being broadcast by the TV stations. Some TV stations may not broadcast FASTEXT teletext signal.

1-5. CONNECTIONS AND OPTIONAL FUNCTIONS

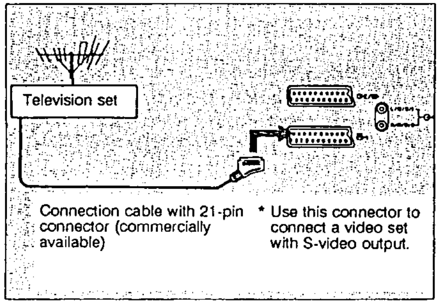
This TV set may be connected to other audio/video machines, such as videocameras, VTRs, videodisc players, or stereo systems.

Connection to an external audio/video system

This TV set incorporates three groups of connectors, for input and output to the TV signal. Each group has the following characteristics.

Connector	Input signal	Output signal
⊖-1	Normal audio/video signal or RGB signal	TV tuner audio/video signal
⊖-2/⊖-	Normal audio/video signal and S-video signal	Audio/video signal from a selectable source
-⊖, ⊖, -⊖ front panel	Normal audio/video signal and S-video signal	No signal

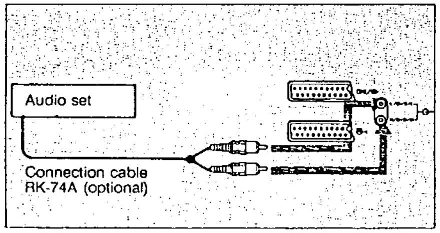
Connection of a TV set



Connection cable with 21-pin connector (commercially available)

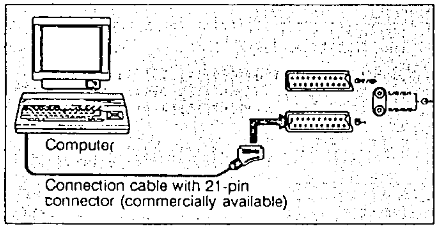
* Use this connector to connect a video set with S-video output.

Connection of an audio unit



Connection cable RK-74A (optional)

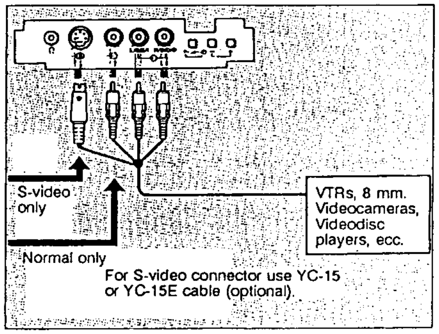
Connection to a computer with RGB output



Connection cable with 21-pin connector (commercially available)

Temporary connection of video apparatus

For a temporary connection (e.g. of a videocamera) use the front panel terminals.



For S-video connector use YC-15 or YC-15E cable (optional).

Connection of a video taperecorder through the ⊤ connector

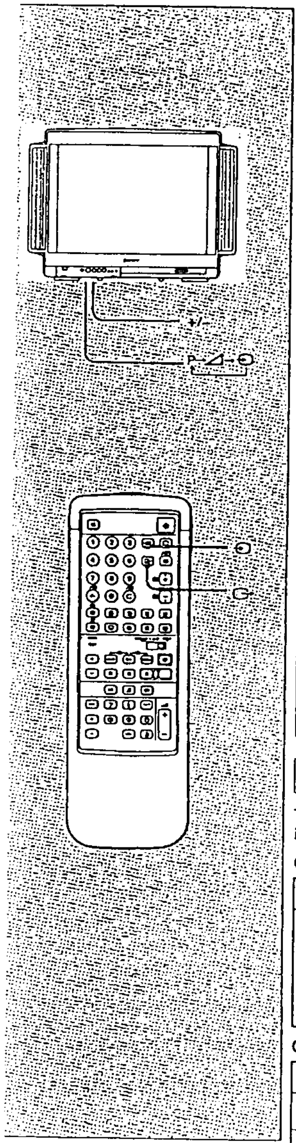
Connect the antenna input (AERIAL-IN) of the TV set to the antenna output (AERIAL-OUT) of the video taperecorder.

S-video input (Y/C input)

The video signal is formed by two separate signals: the luminance (Y) and the chrominance (C). Through the separation of the two signals it is possible to improve picture quality (luminance in particular), preventing reciprocal interferences. This TV set features two S-video sockets able to directly receive this type of signal.

Pictures with distortion

Move the TV set away from the video taperecorder if pictures or sound become distorted.



Video programme playback

Using the input selector, pictures coming from a video taperecorder connected to the TV sets input, may be played back.

Operation

Operation	Result
Select the desired video input by pressing ⊖ repeatedly.	⊖1 The symbol of the selected input appears on the screen (see table hereunder).
Press ○ button to revert to TV mode.	

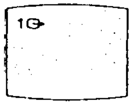
Selectable inputs

Symbol	Selected input
⊖1	Audio/video signal from ⊖-1 connector.
⊖	RGB signal from ⊖-1 connector.
⊖2	Audio/video signal from ⊖-2/⊖- connector.
-⊖2	S-video signal (from a VTR with S-video output) from ⊖-2/⊖- connector.
⊖3	Audio/video signal from ⊖, -⊖connector located on the front panel.
-⊖3	S-video singal from S-video -⊖ (4 pin) connector located on the front panel.
Input can be selected also with P→⊿→⊖ buttons of the TV set. In this case, first select ⊖, and then press the + /– buttons to select the desired input.	

Selection of video output from a ⊖ 2/⊖ connector

The ⊖· 2/⊖- connector may output 4 video signals. Select the outgoing video signal in the following way.

Operation

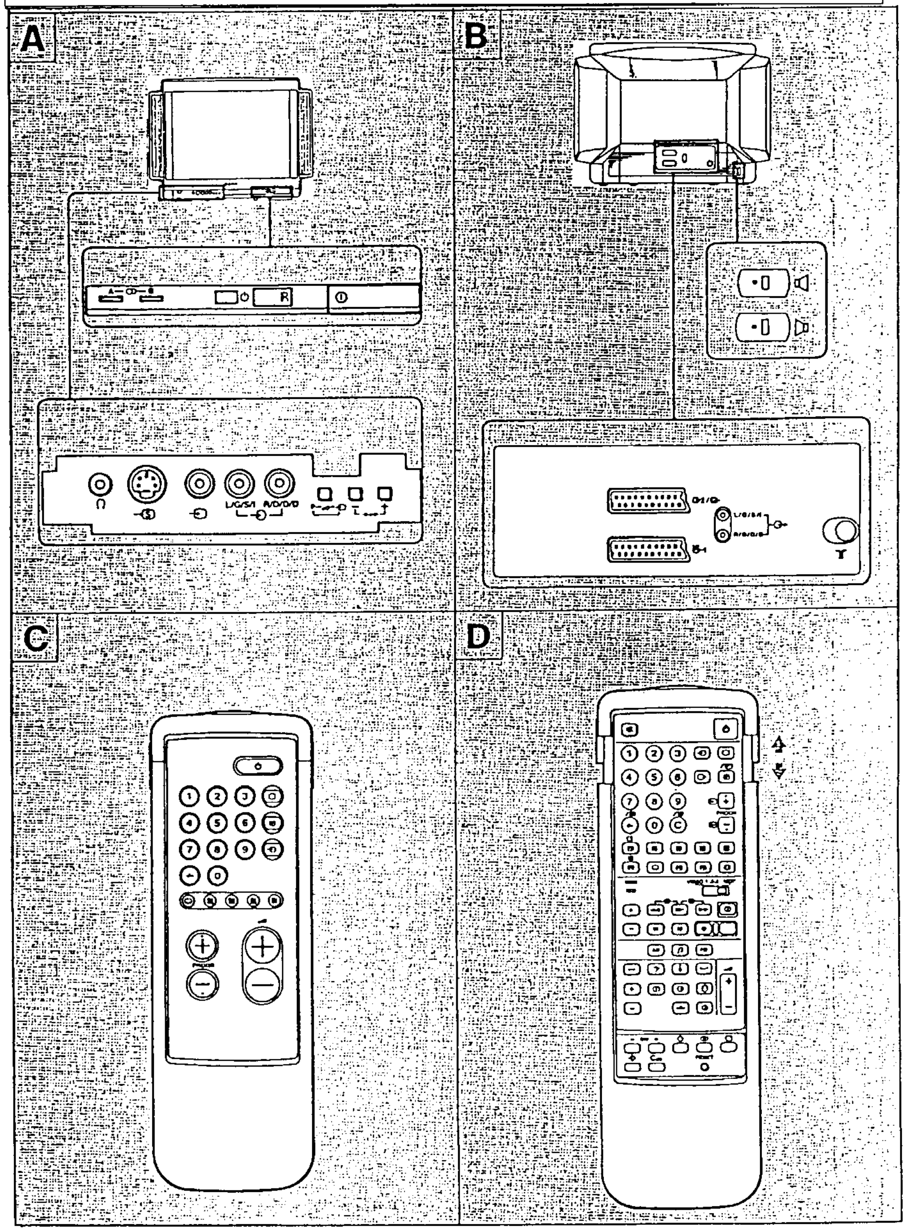
Operation	Result
Press ⊖ repeatedly to select the desired video input.	 1⊖ The selected video input symbol appears on the screen (see the table following).

Output signal

Symbol	Selected output
1 ⊖	Audio/video signal from ⊖-1 connector.
2 ⊖	Audio/video signal from ⊖· 2/⊖- connector.
3 ⊖	Audio/video signal from ⊖ and -⊖ connectors.
TV ⊖	Audio/video signal from T-type antenna connector ⊤.

1-6. GENERAL INFORMATION

Components identification



This section briefly describes controls of the TV set and the remote control unit, and thier relevant functions.

A	TV set front panel
Indication	**Description**
⏽	Power switch
⏻	Stand-by switch
A-◯◯-B	Bilingual function indications
∩	Headphones connector (stereo mini-jack)
-⊖ ⊕ -⊕	Input connectors (S-video/video/audio)
P→◿→⊕	Function selector (programme/volume/input)
– ● +	Function adjustment keys

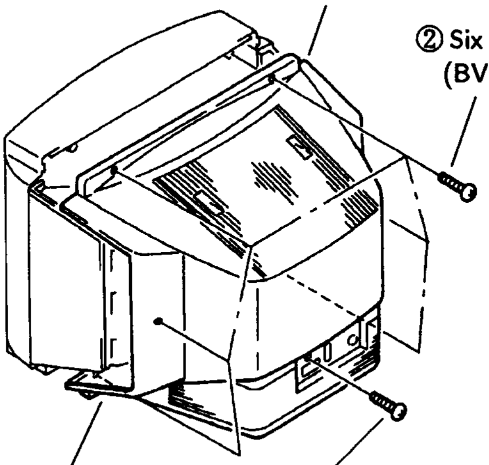
B	TV set rear panel
Indication	**Description**
◁ ▷	Speaker connectors (upper: left speaker; lower: right speaker)
⊖•2/⊖	Connector 2, Euro AV (SCART, 21-pin). S-video in/video in/TV/video out signals.
⊖	Connector 1, Euro AV (SCART, 21-pin). RGB in/video in/TV/out signals.
⊖•	Audio output connectors (RCA pin)
⊤	Antenna connector (of IEC standard)

C	Remote contro unit — simplified side
Indication	**Description**
⊕	Input selector
⊜	Teletext service key
▢	TV set power switch and TV mode selector
⏻	Standby key
1,2,3,4,5,6,7,8,9,0	Number keys
-/--	Channel selection key/ 2-figure programmes
◿ +/-	Volume adjustment key
PROGR +/-	Programme selection key

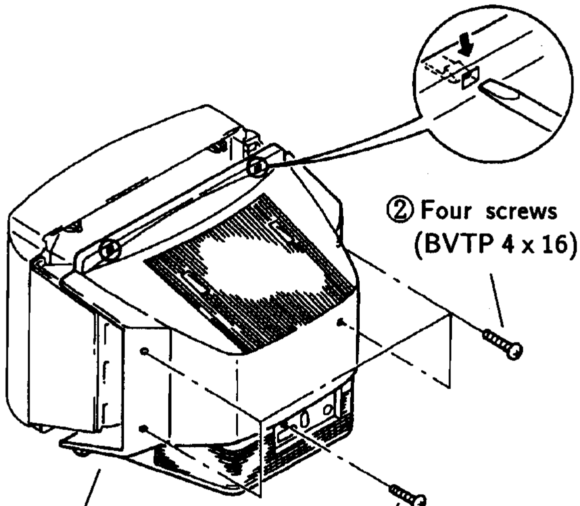
D	Remote control unit — complete side
Indication	**Description**
🔇	Sound muting key
⏻	Standby key
1,2,3,4,5,6,7,8,9,0	Number keys
⊕	Input selector
▢	TV set power switch and TV mode selector
⊕	Output selector
⊜	Teletext key
♫	Music programme key
A/B	Bilingual programmes language selection
-/--	Channel selection key/ 2-figure programmes
C	Channel direct selection key
⊖	Special sound effect key
◎	Time display
⊡⊡▢⊡ ⊡⊡⊡⊡	Teletext operation keys
⊡	Display key
→•←	Reset key
◿ +/-	Volume adjustment keys
PROGR +/-	Programme selection keys
◑◐☼◑ ◿ +–	Image and audio adjustment keys
MEM	MEM light indication
VIDEO 1/2/3, MDP	Video unit selector
◀◀ ▶ ▶▶ ■ ❙❙ ●	Video units function key
Coo	Programme cancelling key
⇢	Channel presetting key
+ ⊡ –	Channel tuning keys
◇	Channel storing keys
▢	Broadcasting stations identification key
RESET	Cancel key

SECTION 2
DISASSEMBLY

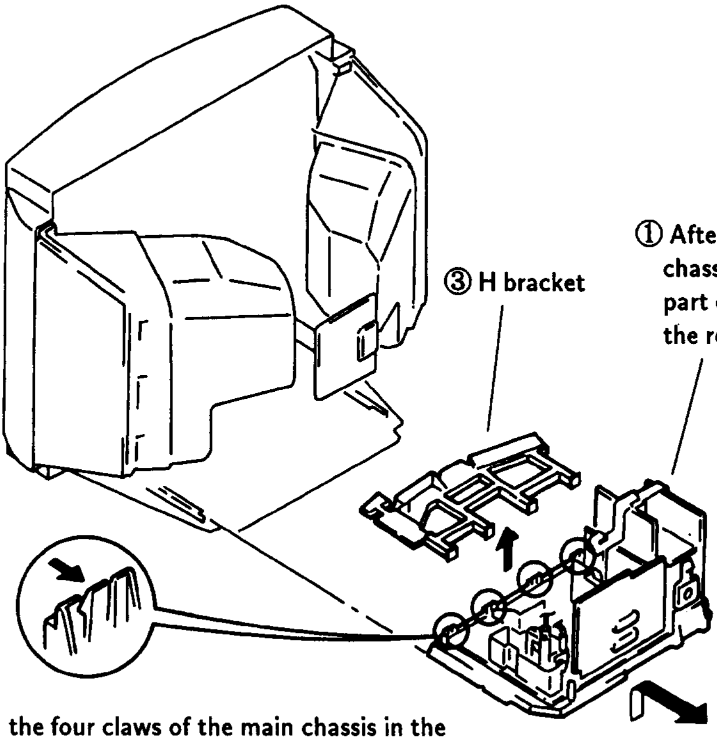
2-1-1. REAR COVER REMOVAL (21 inch)


③ Rear cover
② Six screws
(BVTP 4 x 16)
④ Rear cover
① One screw
(BVTP 4 x 16)

2-1-2. REAR COVER REMOVAL (25 inch, 29 inch)


③ The two claws
② Four screws
(BVTP 4 x 16)
④ Rear cover
① One screw
(BVTP 4 x 16)

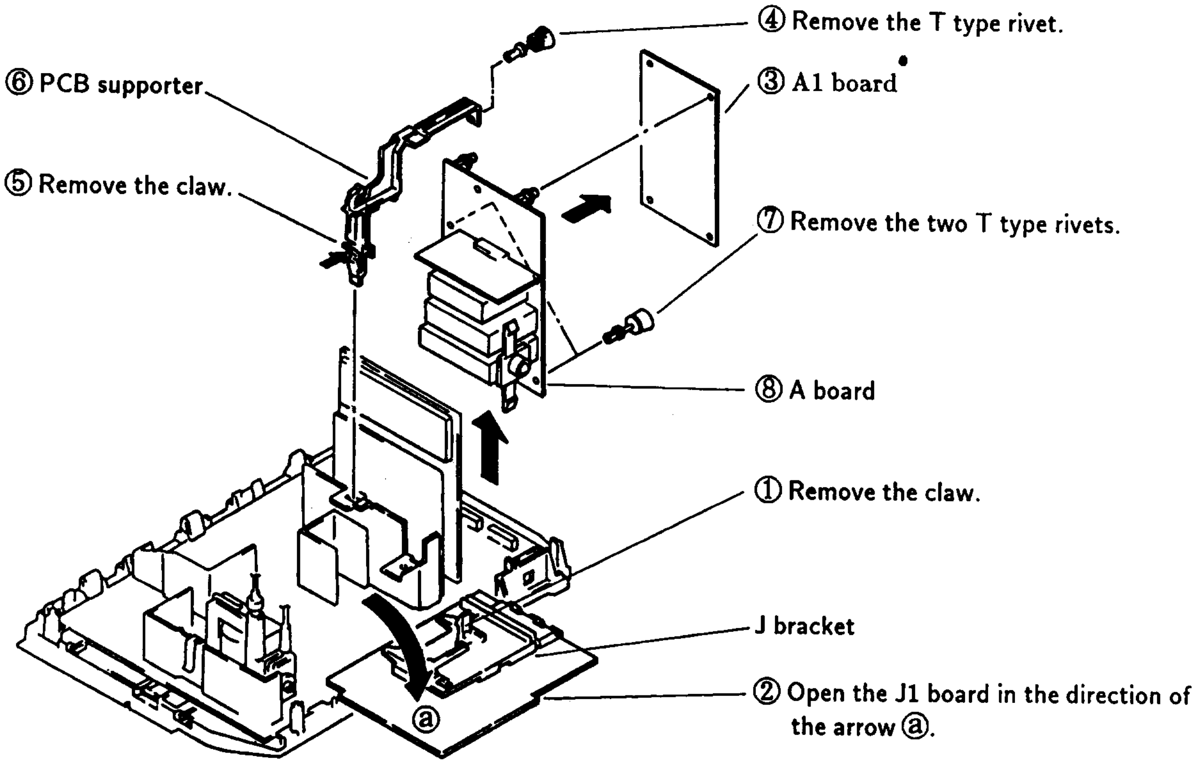
2-2. CHASSIS ASSEMBLY REMOVAL



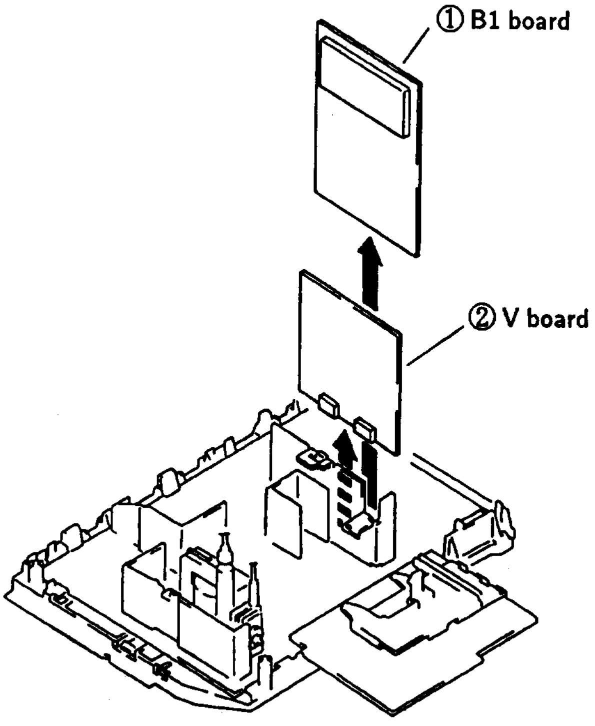
① After the assembly of the main chassis, lift and pull out the rear part of the main chassis toward the rear.

② Push the four claws of the main chassis in the direction of the arrow and remove the H bracket upwards.

2-3. A, A 1 AND J1 BOARDS REMOVAL


④ Remove the T type rivet.
⑥ PCB supporter
③ A1 board
⑤ Remove the claw.
⑦ Remove the two T type rivets.
⑧ A board
① Remove the claw.
J bracket
② Open the J1 board in the direction of the arrow ⓐ.
ⓐ

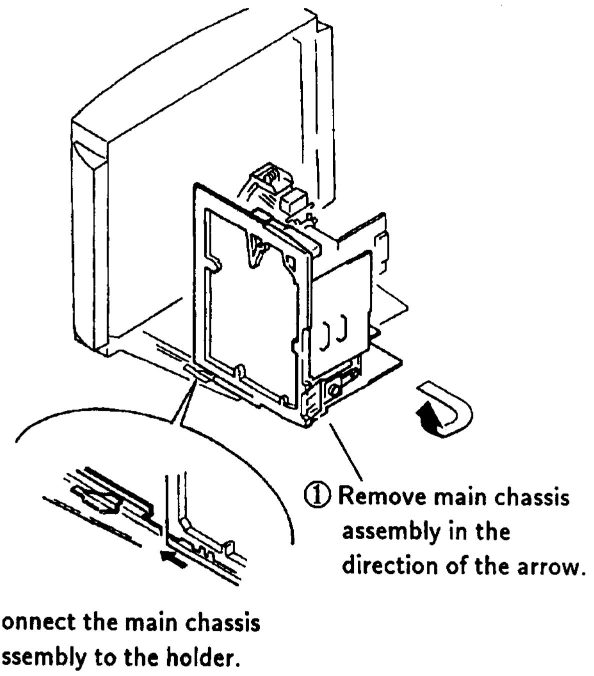
2-4. B1 AND V BOARDS REMOVAL


① B1 board
② V board

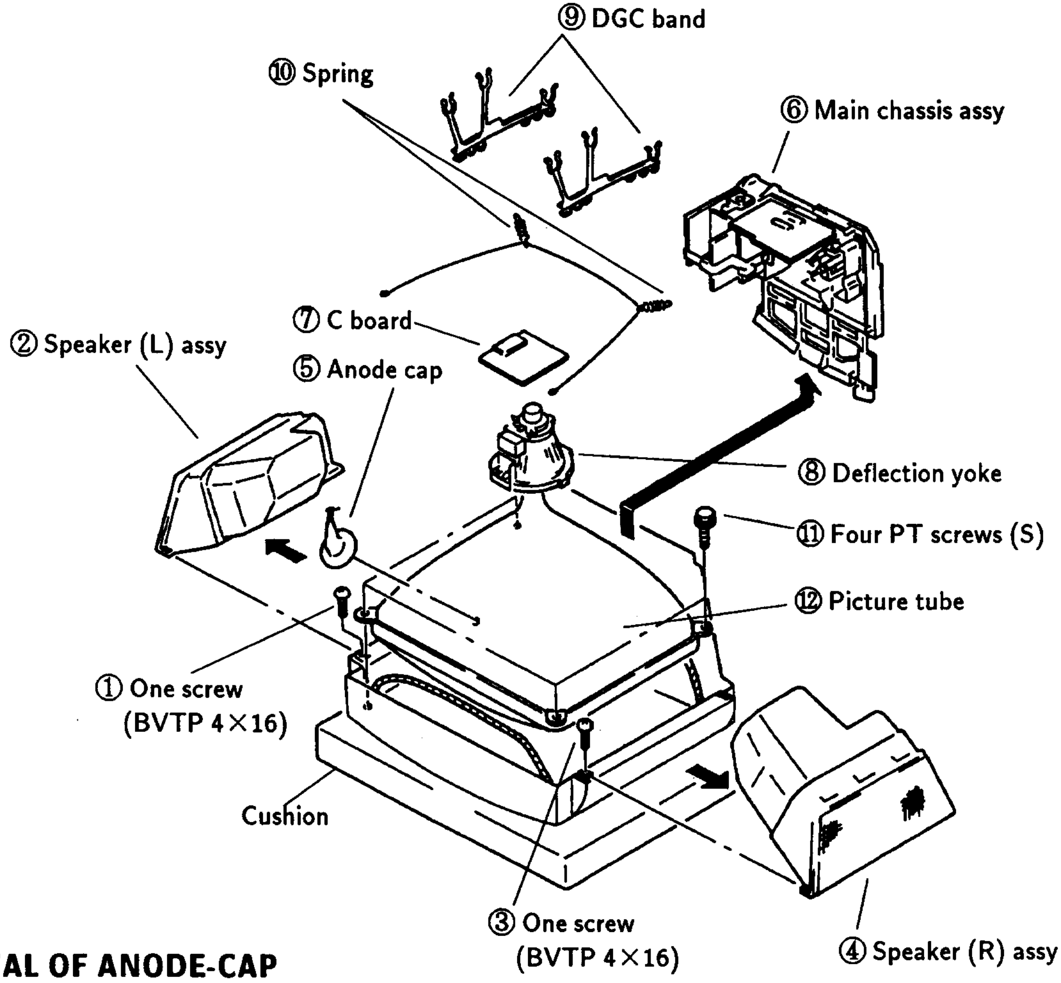
Note : 10 pin extension cable (S-0945-001-0)

2-5. SERVICE POSITION

※ Remove the H bracket from the main chassis assembly and then perform the following servicing.
(Refer to 2-2. CHASSIS ASSEMBLY REMOVAL.)


① Remove main chassis assembly in the direction of the arrow.
② Connect the main chassis assembly to the holder.

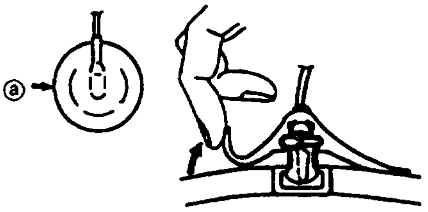
2-6-1. PICTURE TUBE REMOVAL (21 inch)


⑨ DGC band
⑩ Spring
⑥ Main chassis assy
⑦ C board
② Speaker (L) assy
⑤ Anode cap
⑧ Deflection yoke
⑪ Four PT screws (S)
⑫ Picture tube
① One screw
(BVTP 4×16)
Cushion
③ One screw
(BVTP 4×16)
④ Speaker (R) assy

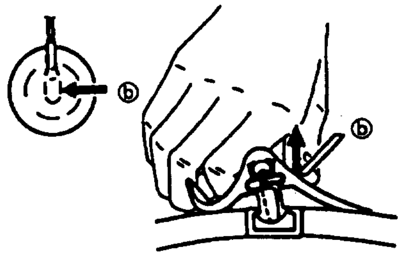
• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

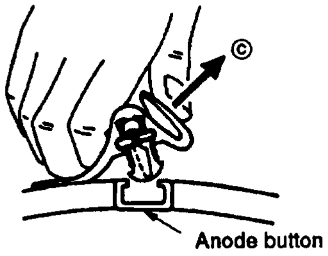
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

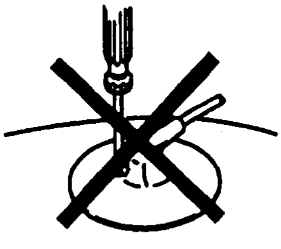
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

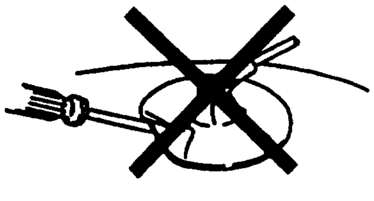
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

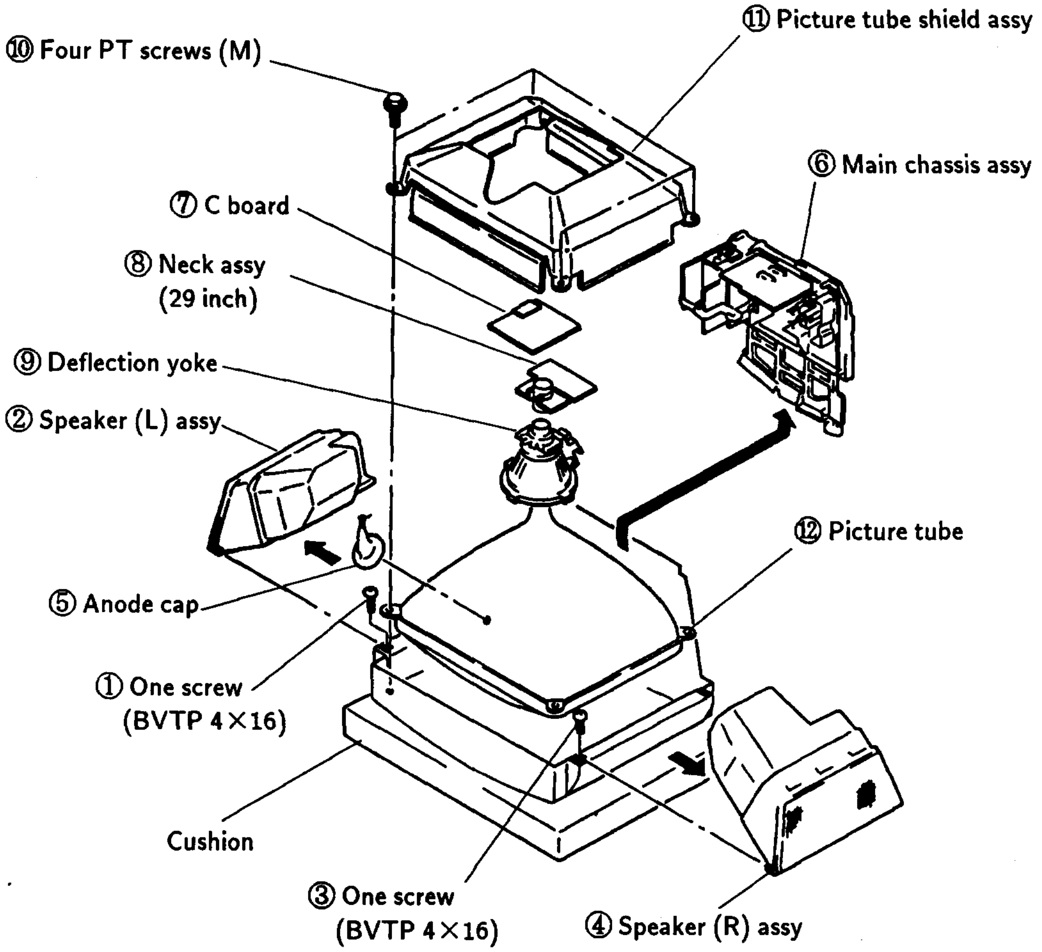
② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





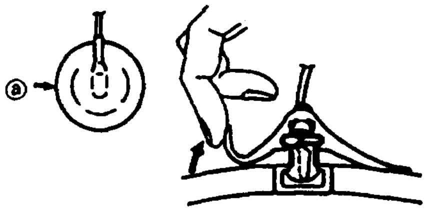
2-6-2. PICTURE TUBE REMOVAL (25 inch, 29 inch)


⑪ Picture tube shield assy
⑩ Four PT screws (M)
⑥ Main chassis assy
⑦ C board
⑧ Neck assy (29 inch)
⑨ Deflection yoke
② Speaker (L) assy
⑫ Picture tube
⑤ Anode cap
① One screw (BVTP 4×16)
Cushion
③ One screw (BVTP 4×16)
④ Speaker (R) assy

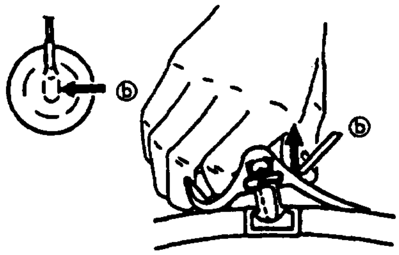
• REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

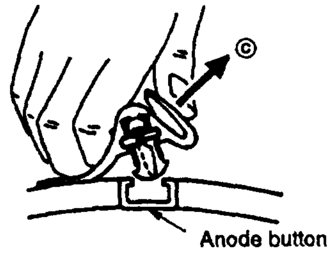
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

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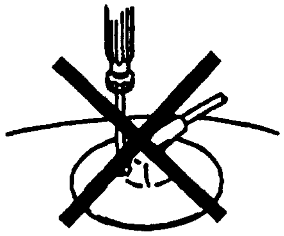
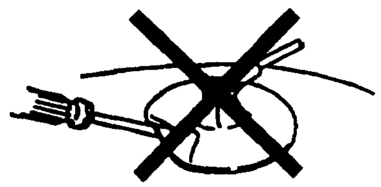




SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch below should be set as follows unless otherwise noted :

◑ CONTRASTcontrol……… 80%(or Normal by commander)

☼ BRIGHTNESS control…… 50%

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

Preparation: (21 inch, 25 inch)

- Set the side of the unit with the PICTUE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser..

3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.
   CONTRAST
   BRIGHTNESS } normal
2. Turn the raster signal of the pattern generator to red.
3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly. (Fig.3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)
5. Switch over the raster signal to blue and blue and confirm the condition.
6. When the position of the deflection yoke is determined,tighten it with a deflection yoke mounting screw.
7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

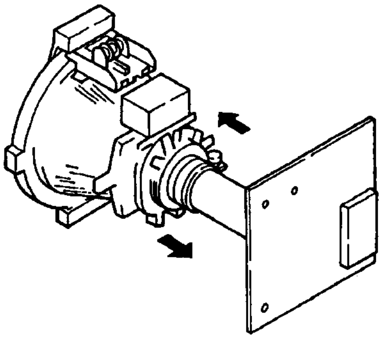


Fig.3-1

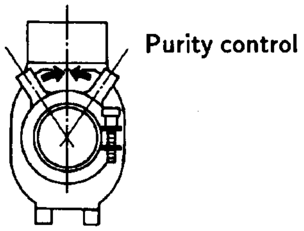

Purity control

Fig.3-2

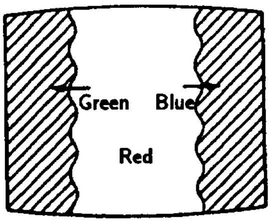

Green
Blue
Red

Fig.3-3

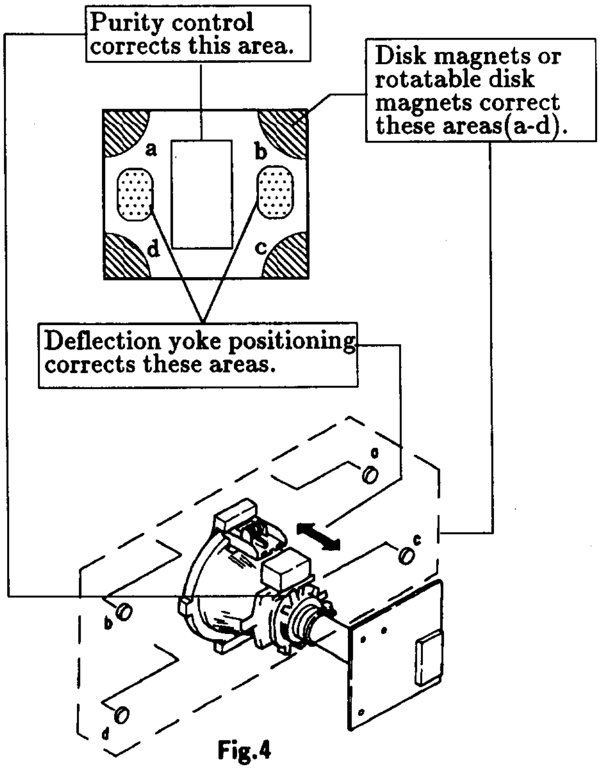

Purity control corrects this area.
Disk magnets or rotatable disk magnets correct these areas(a-d).
a
b
d
c
Deflection yoke positioning corrects these areas.
a
b
c
d

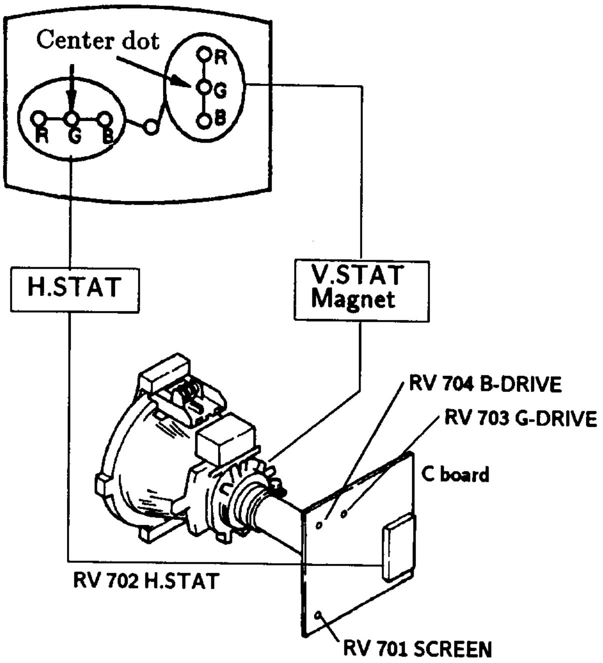
Fig.4

3-2. CONVERGENCE

Preparation:

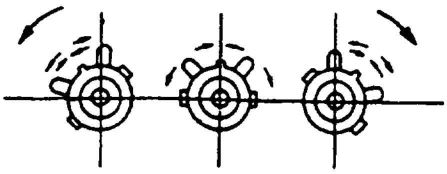
- Before starting, perform FOCUS, H.SIZE, and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

(1) Horizontal and Vertical Static Convergence

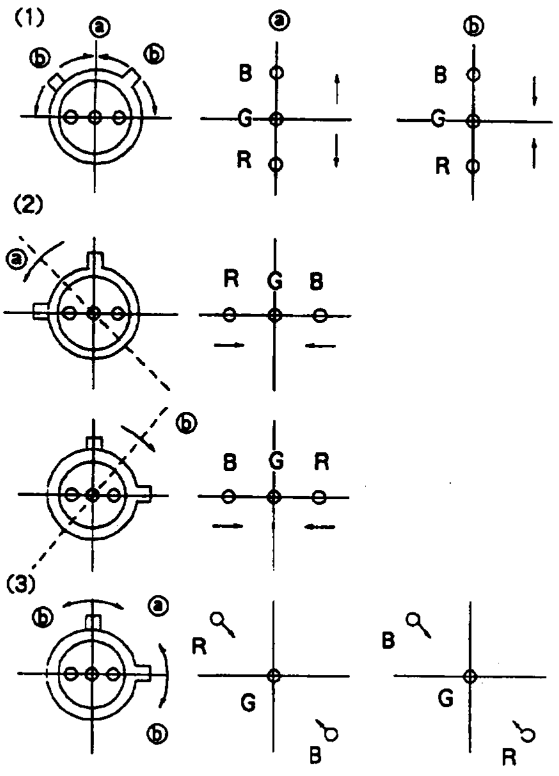

Center dot
R
G
B
R G B
H.STAT
V.STAT Magnet
RV 704 B-DRIVE
RV 703 G-DRIVE
C board
RV 702 H.STAT
RV 701 SCREEN

1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)

- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4.When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ, red, green and blue dots move as shown below.


(1)
ⓐ
ⓑ
ⓑ
ⓐ
B
G
R
ⓑ
B
G
R
(2)
ⓐ
R G B
ⓑ
B G R
(3)
ⓑ
ⓐ
ⓑ
R
G
B
B
G
R

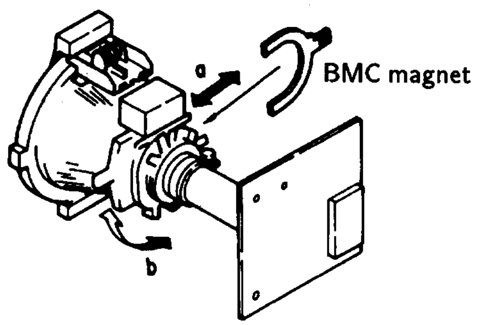
(KV-21 inch only)

If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

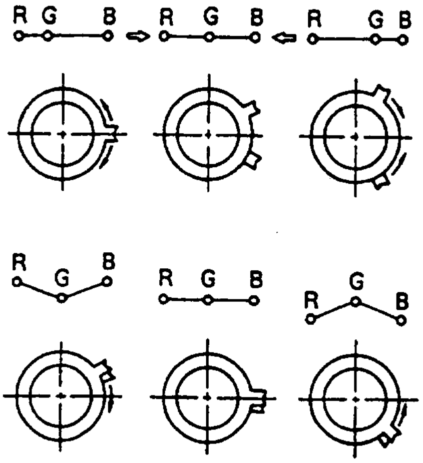
Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

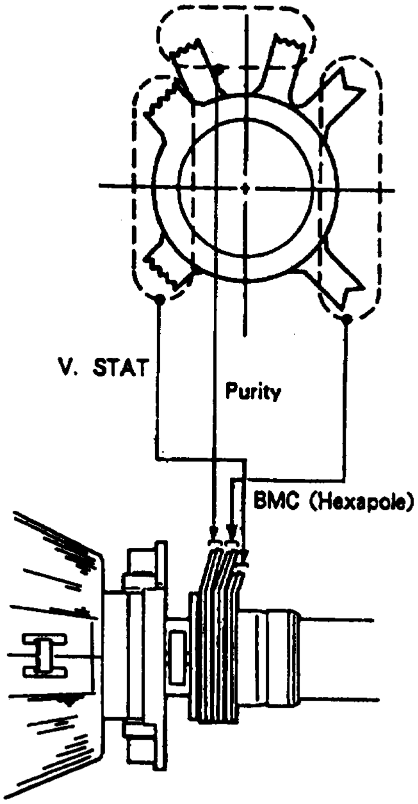

a
b
BMC magnet

(KV-25 inch only)

- Operation of BMC (Hexapole) Magnet


R G B
R G B
R G B
R G B
R G B
R G B

- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

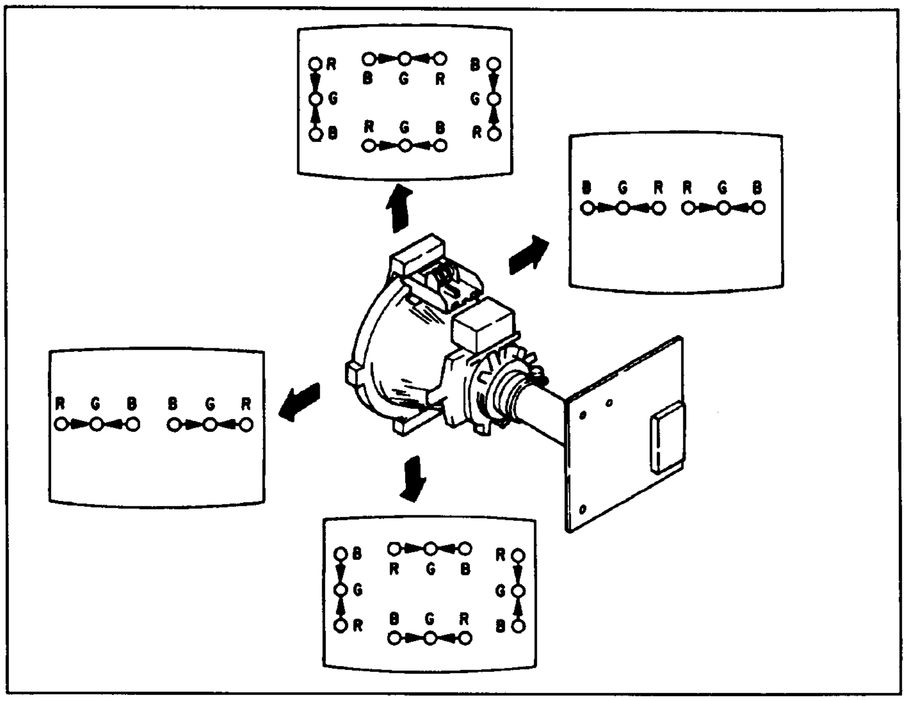

V. STAT
Purity
BMC (Hexapole)

(2)Dynamic Convergence Adjustment

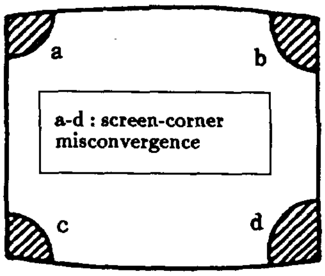
Preparation:

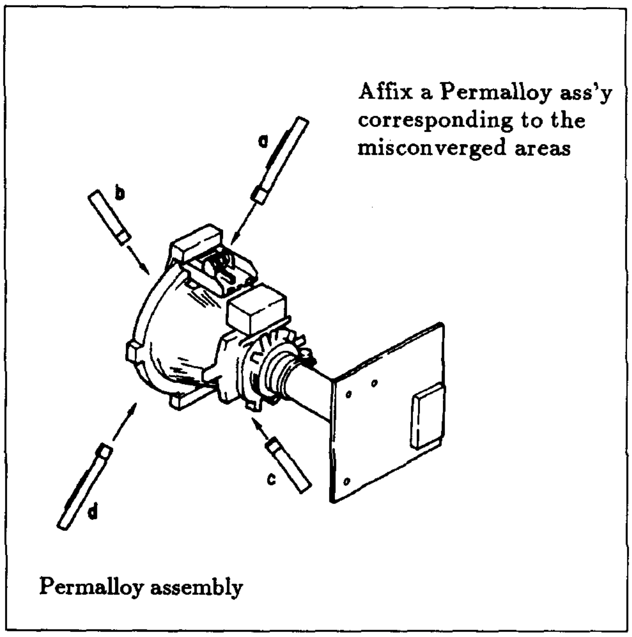
● Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergenceas shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.


R G B
B G R
R G B
B G R
B G R R G B
R G B B G R
B G R
R G B
B G R
R G B

(3) Screen-corner Convergence


a
b
a-d : screen-corner misconvergence
c
d

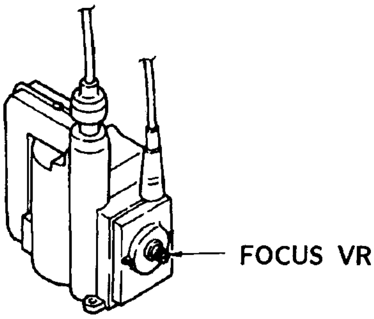


Affix a Permalloy ass'y corresponding to the misconverged areas

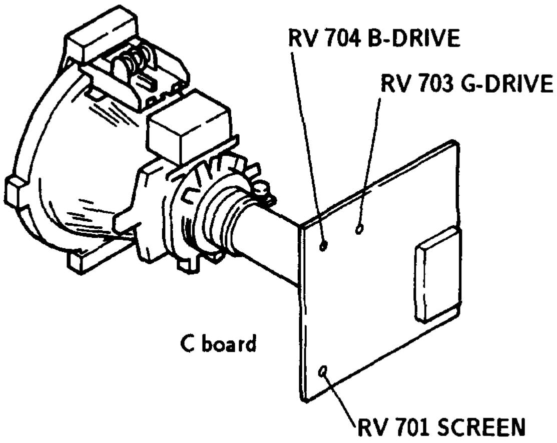
Permalloy assembly

3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.



3-4. SCREEN (G 2) and WHITE BALANCE


RV 704 B-DRIVE
RV 703 G-DRIVE
C board
RV 701 SCREEN

Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power power source.
4. While watching the picture, adjust the G 2 volume (RV701) immediately before fly-back line disappears.

White Balance Adjustment

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

Preparations : (29 inch)

- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast } normal
   Bightness }
2. Position neck ass'y as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Figure 3-1.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

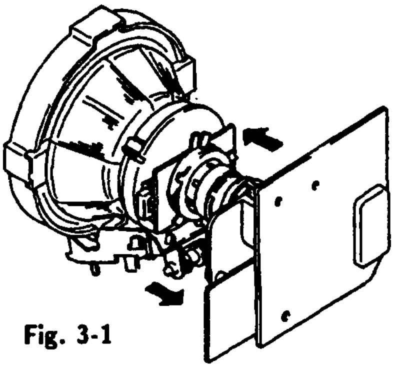


Fig. 3-1

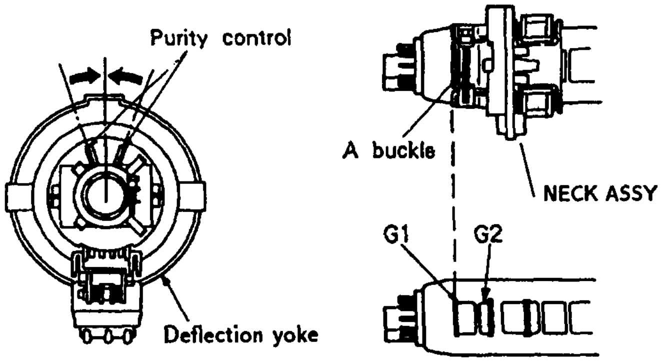

Purity control
Deflection yoke
A buckle
NECK ASSY
G1
G2

Fig. 3-2

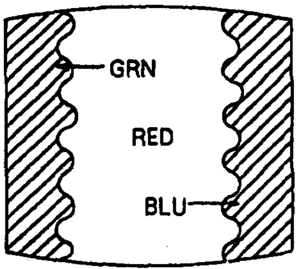


Fig. 3-3

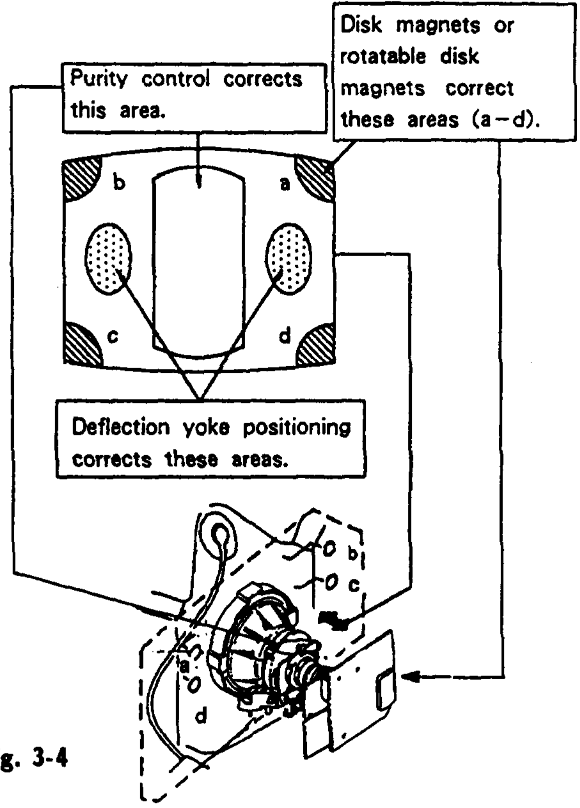

Disk magnets or rotatable disk magnets correct these areas (a−d).
Purity control corrects this area.
b
a
c
d
Deflection yoke positioning corrects these areas.
b
c
a
d

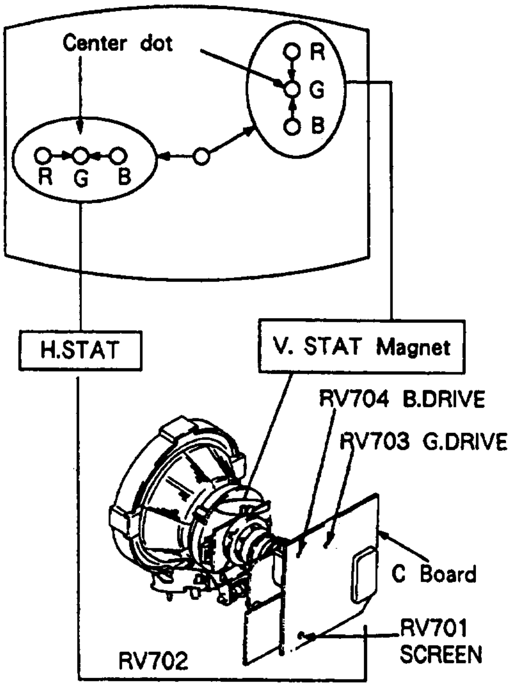
Fig. 3-4

3-2. CONVERGENCE

Preparations :

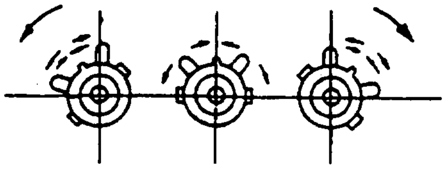
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and vertical static convergence



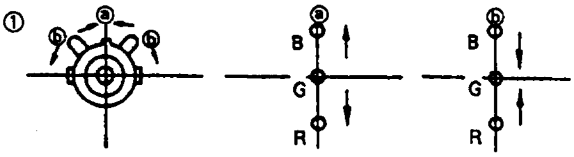
1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

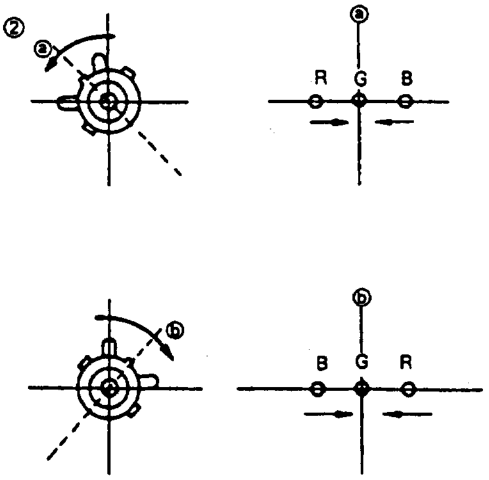


4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.

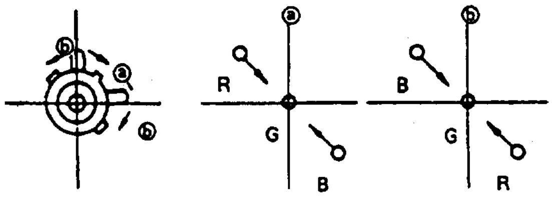
①



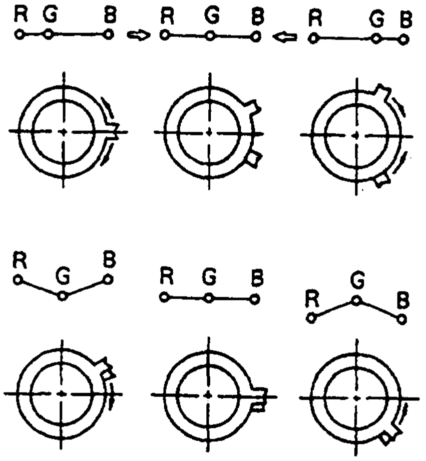
②



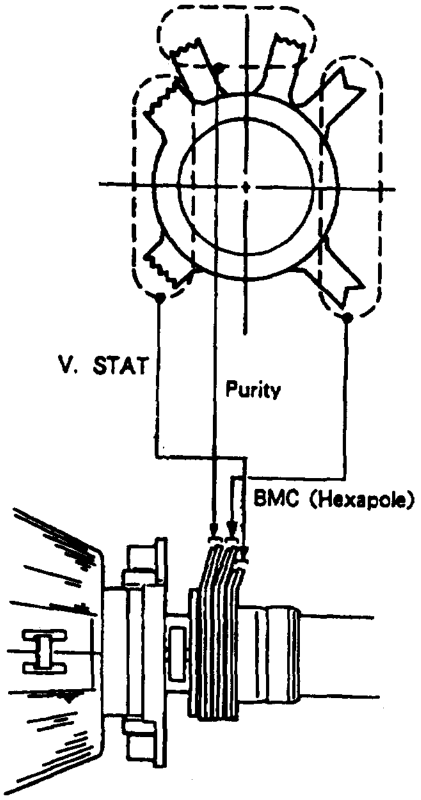
③



- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

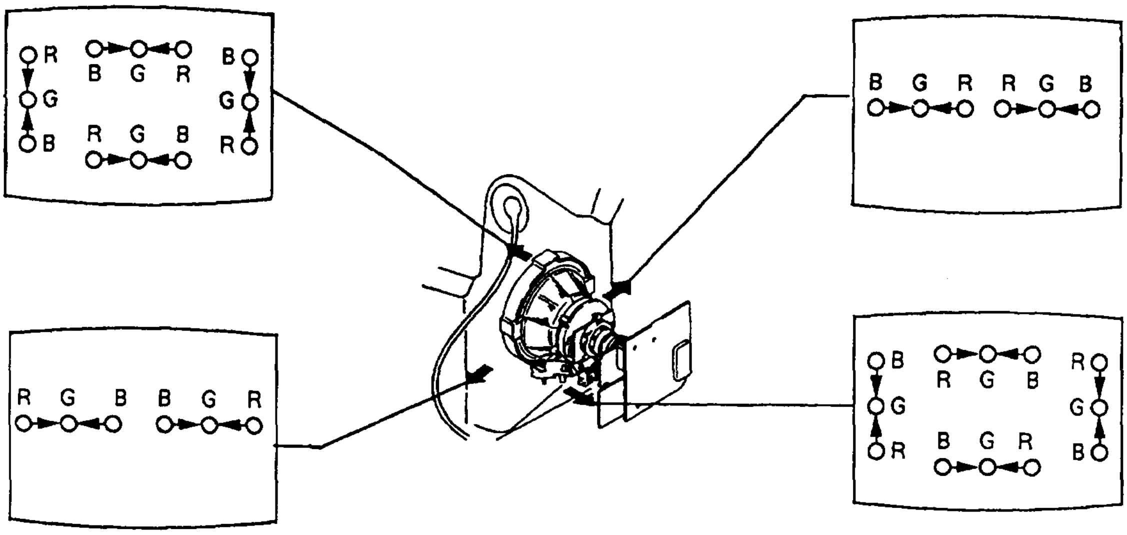


(2) Dynamic convergence adjustment

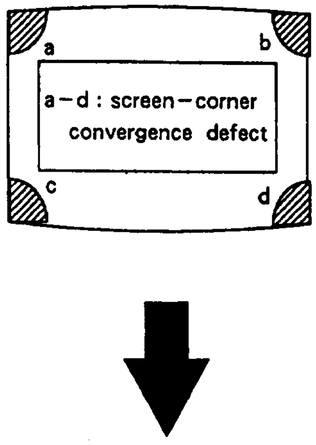
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

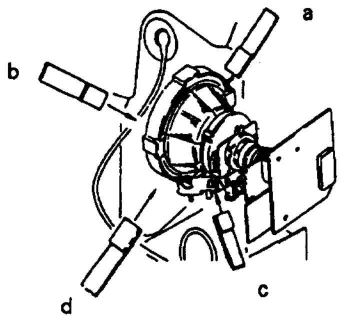
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.



(3) Screen corner convergence



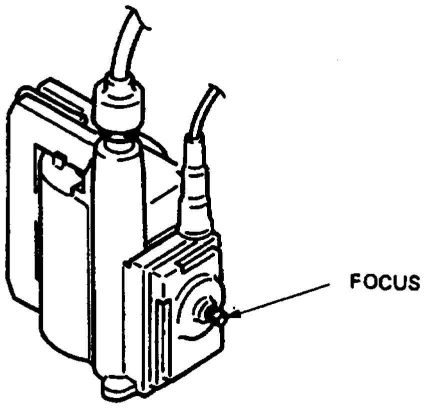
Install the permalloy assembly for the section with faulty.



Permalloy

3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

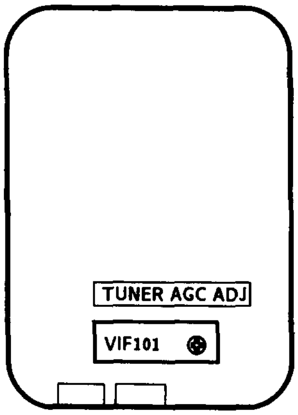
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

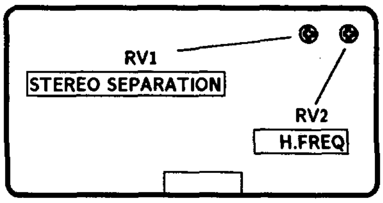


A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF



IFG5.5S SIF -component side-

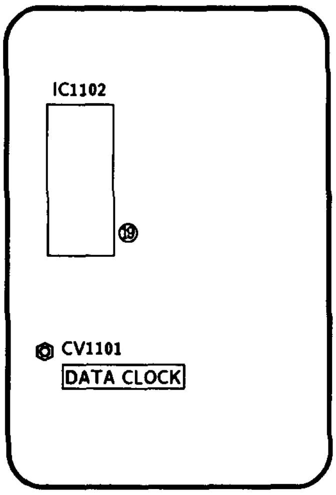
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. A1 BOARD ADJUSTMENTS

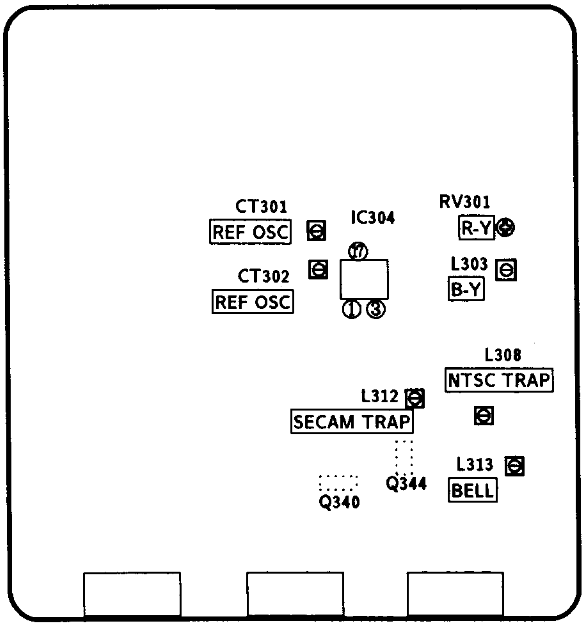


A1 BOARD (COMPONENT SIDE)

DATA CLOCK ADJUSTMENT (CV1101)

1. Tune in a no signal.
2. Connect a frequency counter to pin⑲ of IC1102 (PCLK) through a probe of 10 : 1
3. Adjust CV1101 (DATA CLOCK) so that frequency becomes 728.022KHz±1Hz.

4-3. B1 BOARD ADJUSTMENTS


CT301
REF OSC
IC304
RV301
R-Y
⑰
CT302
REF OSC
L303
B-Y
①③
L308
NTSC TRAP
L312
SECAM TRAP
L313
Q344
BELL
Q340

B1 BOARD (COMPONENT SIDE)

REFERENCE OSCILLATOR ADJUSTMENT (CT302 8.8MHz)

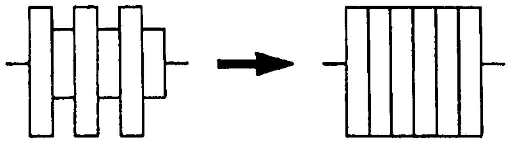
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC304.
3. Adjust CT302 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT301 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC304.
3. Adjust the CT301 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC304.

BELL FILTER ADJUSTMENT (L313)

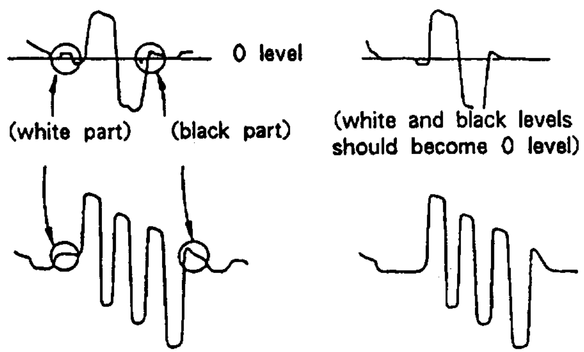
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q344.
3. Adjust L313 so that the waveform is flat.



<Before Adjustment>　<After Adjustment>

DISCRIMINATION ADJUSTMENTS (RV301 and L303)

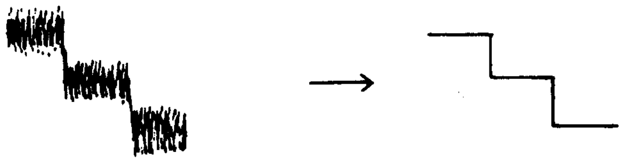
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC304.
3. Adjust RV301 until the white and black sections of the waveform at pin ① are at the 0 level. Connect the oscilloscope to pin ③ of IC304.
4. Adjust L303 until the white and black sections of the waveform at pin ③ are at the 0 level.


0 level
(white part)
(black part)
(white and black levels should become 0 level)

(Before Adjustment)　(After adjustment)

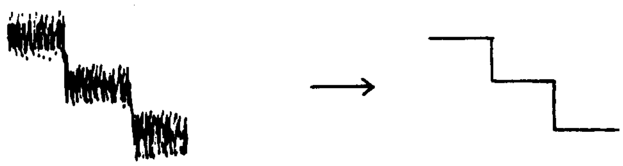
SECAM TRAP (L312)

1. Input a SECAM color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L312 to minimize color carrier on the Y-signal.

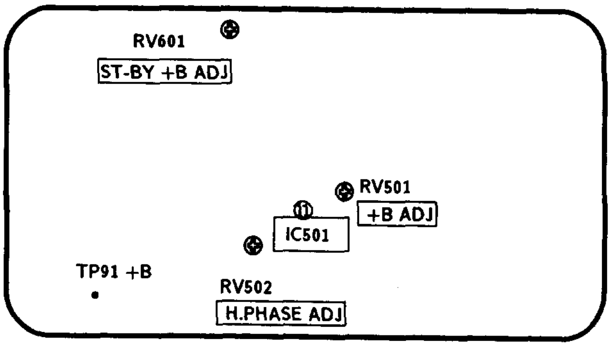


NTSC TRAP (L308)

1. Input a NTSC (3.58) color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L308 to minimize color carrier on the Y-signal.



4-4. D BOARD ADJUSTMENTS


RV601
ST-BY +B ADJ
RV501
+B ADJ
⑪
IC501
TP91 +B
RV502
H.PHASE ADJ

D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

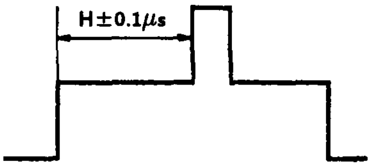
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

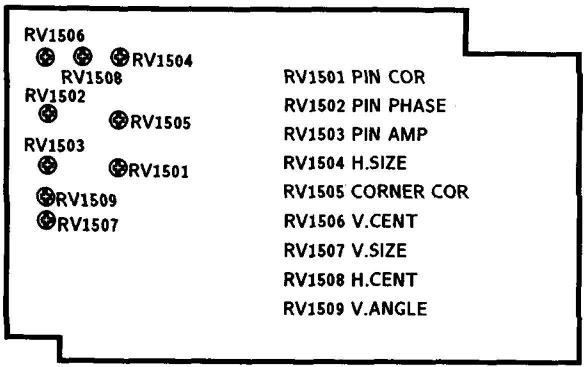
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to H±0.1μs.



Standard of H. PHASE

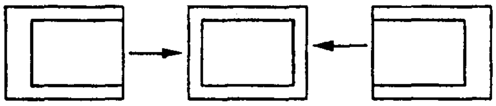
Model Size	H
21″	5.6μs
25″	5.1μs
29″	5.5μs

4-5. J1 BOARD ADJUSTMENTS

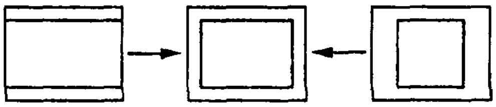

RV1506
RV1504
RV1508
RV1502
RV1505
RV1503
RV1501
RV1509
RV1507
RV1501 PIN COR
RV1502 PIN PHASE
RV1503 PIN AMP
RV1504 H.SIZE
RV1505 CORNER COR
RV1506 V.CENT
RV1507 V.SIZE
RV1508 H.CENT
RV1509 V.ANGLE

J1 BOARD (COMPONENT SIDE)

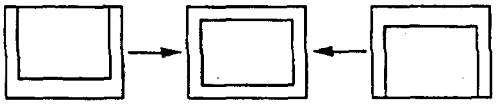
RV1508
H. CENT (HORIZONTAL CENTER)



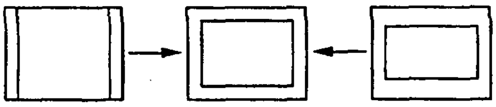
RV1504
H. SIZE (HORIZONTAL SIZE)



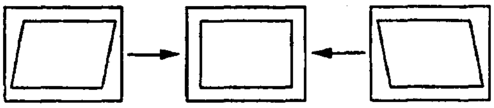
RV1506
V. CENT (VERTICAL CENTER)



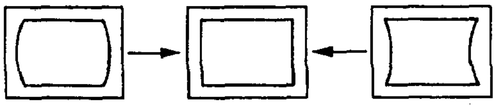
RV1507
V. SIZE (VERTICAL SIZE)



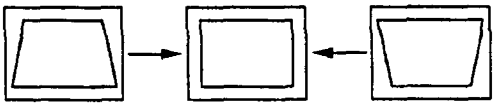
RV1509
V. ANGLE (VERTICAL ANGLE)



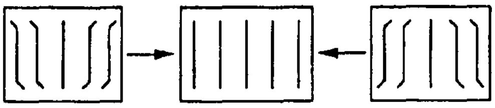
RV1503
PIN AMP (PINCUSHION AMPLIFIER)



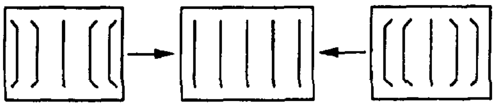
RV1502
PIN PHASE (PINCUSHION PHASE)



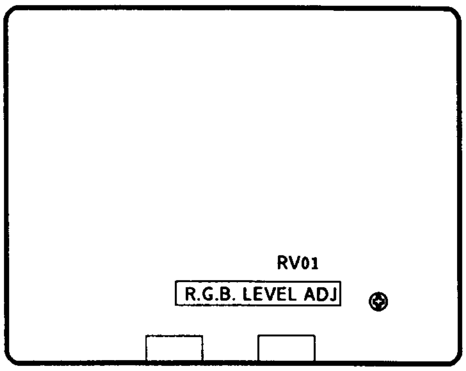
RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER. COR (CORNER CORRECT)



4-6. V BOARD ADJUSTMENT



V BOARD (COMPONENT SIDE)

RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

4-7. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and − simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◑ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

If there is no test color pattern

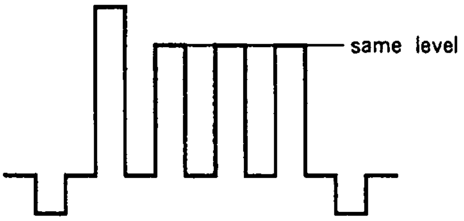
1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
   Set the ⊛ color to its normal state.

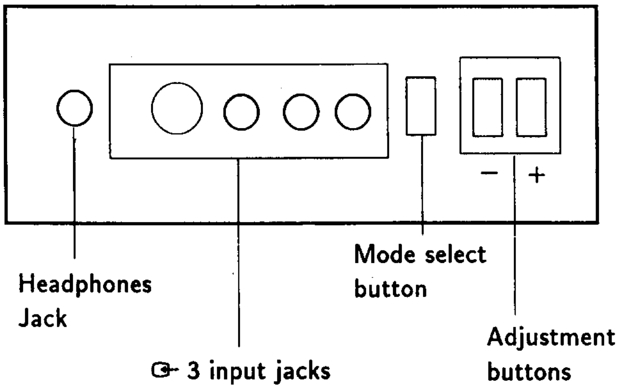
3-5. Steps are the same as above.

6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.
7. Same as step 7 above.
8. Press → • ← on the remote commander to put the system into normal mode.

SUB COLOR ADJUSTMENT

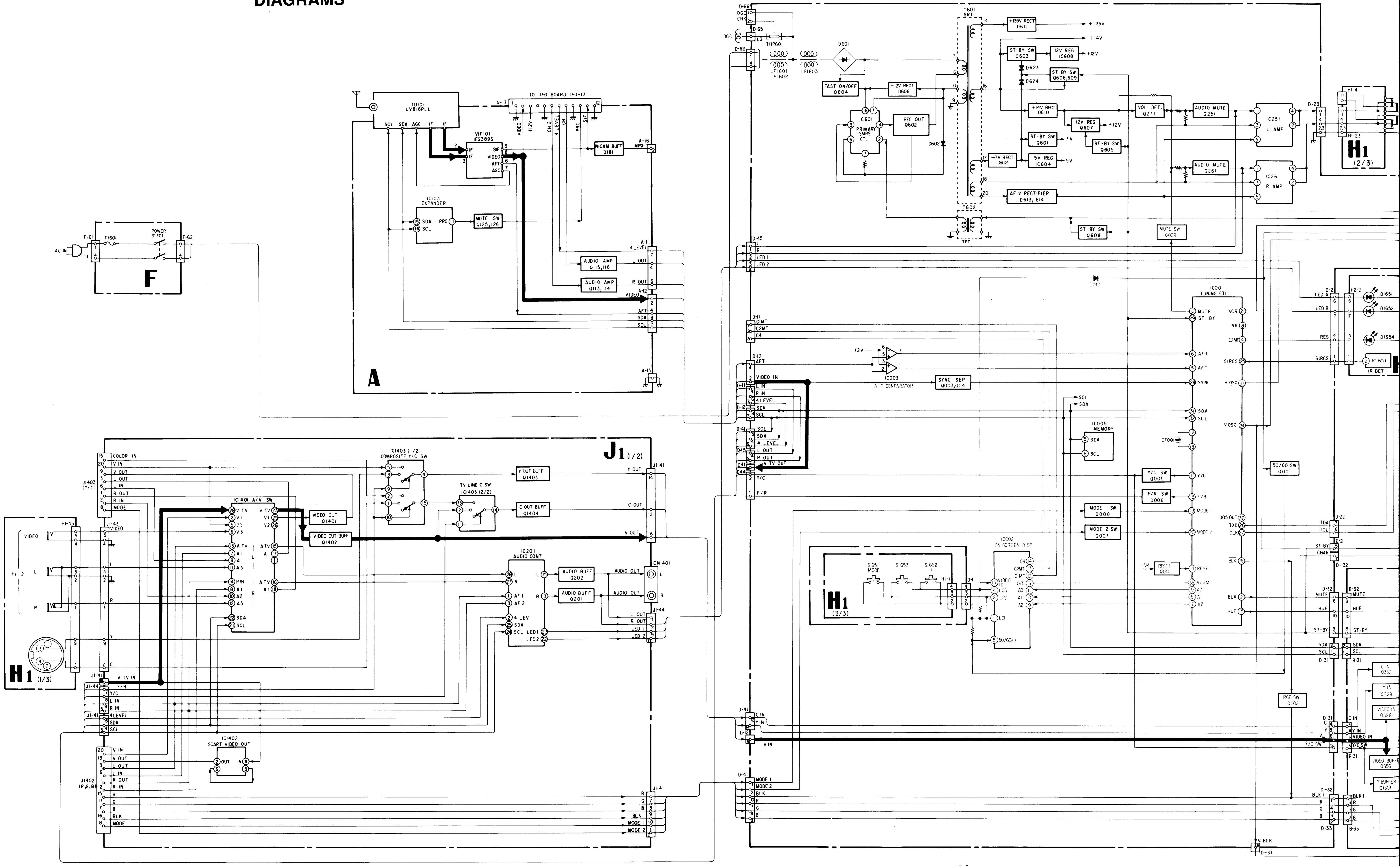
1. Set the system to receive color bars.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and − simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)



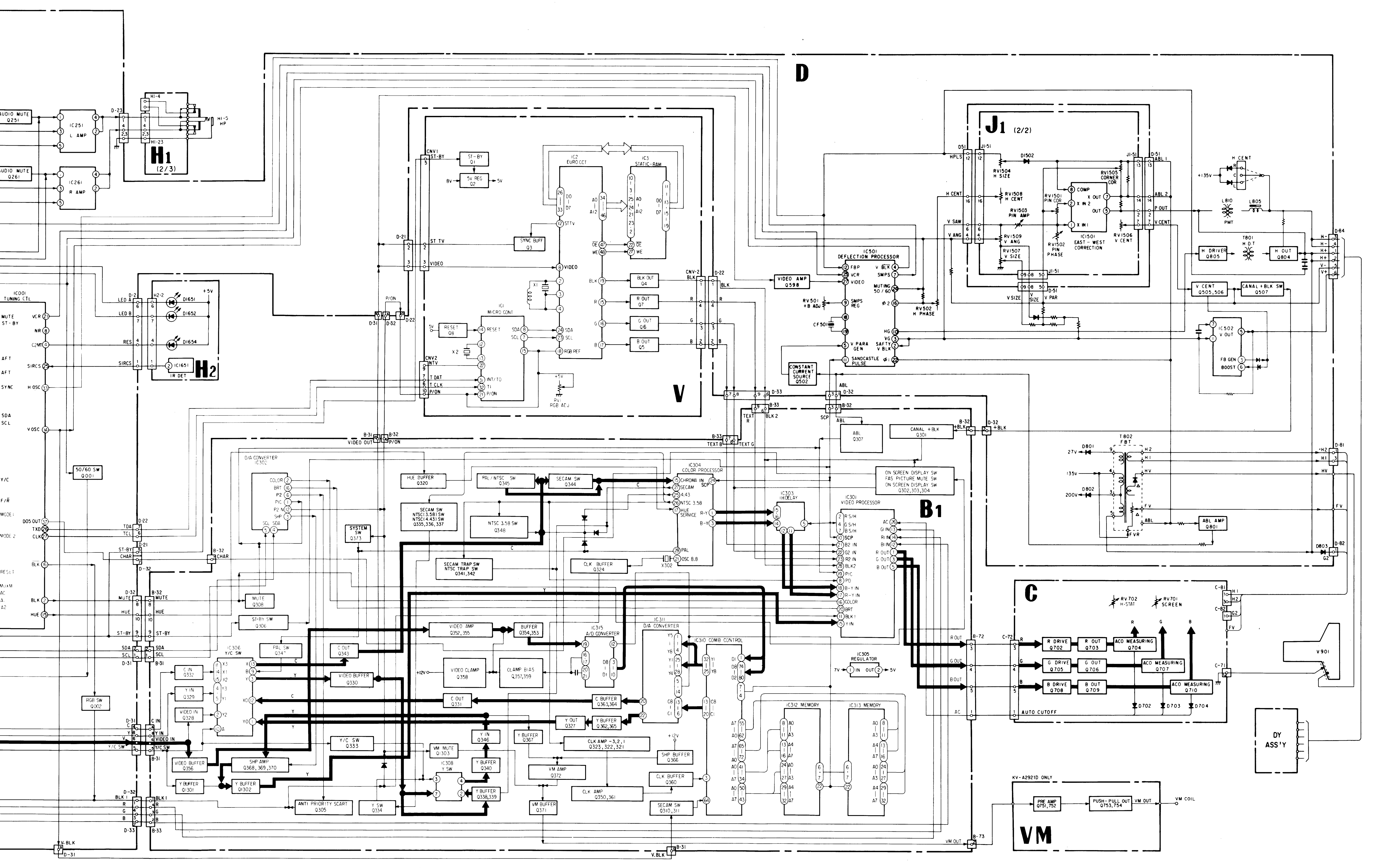


SECTION 5
DIAGRAMS

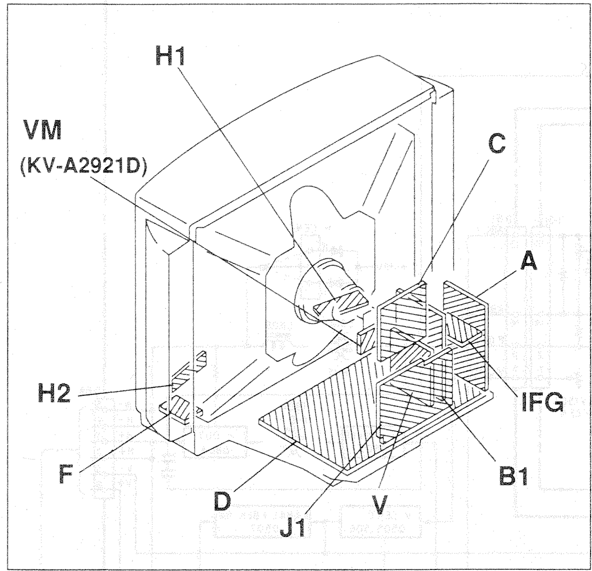
5-1. BLOCK DIAGRAM



TU101 UV816PLL
VIF101 IFG389S
TO IFG BOARD IFG-13
NICAM BUFF Q181
IC103 EXPANDER
MUTE SW Q125,126
AUDIO AMP Q115,116
AUDIO AMP Q113,114
A
F
F1601
POWER S1701
AC IN
J1 (1/2)
J1403 (Y/C)
J1402 (R,G,B)
IC1401 A/V SW
IC1403 (1/2) COMPOSITE Y/C SW
TV LINE C SW IC1403 (2/2)
Y OUT BUFF Q1403
C OUT BUFF Q1404
VIDEO OUT Q1401
VIDEO OUT BUFF Q1402
IC201 AUDIO CONT
AUDIO BUFF Q202
AUDIO BUFF Q201
CN1401
IC1402 SCART VIDEO OUT
H1 (1/3)
H1 (2/3)
H1 (3/3)
T601 SRT
T602
THP601
LF1601 LF1602
LF1603
D601
FAST ON/OFF Q604
+12V RECT D606
IC601 PRIMARY SMRS CTL
REG OUT Q602
+135V RECT D611
ST-BY SW Q603
12V REG IC608
ST-BY SW Q606,609
+14V RECT D610
12V REG Q607
ST-BY SW Q601
ST-BY SW Q605
+7V RECT D612
5V REG IC604
AF V RECTIFIER D613, 614
ST-BY SW Q608
MUTE SW Q009
VOL DET. Q271
AUDIO MUTE Q251
AUDIO MUTE Q261
IC251 L AMP
IC261 R AMP
IC003 AFT CONPARATOR
SYNC SEP Q003,004
IC005 MEMORY
IC001 TUNING CTL
Y/C SW Q005
F/R SW Q006
MODE 1 SW Q008
MODE 2 SW Q007
50/60 SW Q001
RESET Q010
IC002 ON SCREEN DISP
S1651 MODE
S1653
S1652
RGB SW Q002
IC1651 IR DET
D1651
D1652
D1654
C IN Q332
Y IN Q329
VIDEO IN Q328
VIDEO BUFF Q356
Y BUFFER Q1301
+135V
+14V
+12V
+7V
+5V


D
J1 (2/2)
H1 (2/3)
H2
V
B1
C
VM
AUDIO MUTE Q251
AUDIO MUTE Q261
IC251 L AMP
IC261 R AMP
H1-5 HP
IC001 TUNING CTL
50/60 SW Q001
RGB SW Q002
D1651
D1652
D1654
IC1651 IR DET
ST-BY Q1
5V REG Q2
SYNC BUFF Q3
IC2 EURO CCT
IC3 STATIC-RAM
IC1 MICRO CONT
RESET Q8
BLK OUT Q4
R OUT Q7
G OUT Q6
B OUT Q5
RV1 RGB ADJ
VIDEO AMP Q598
IC501 DEFLECTION PROCESSOR
RV501 +B ADJ
CF501
RV502 H PHASE
CONSTANT CURRENT SOURCE Q502
RV1504 H SIZE
RV1508 H CENT
RV1503 PIN AMP
RV1509 V ANG
RV1507 V SIZE
RV1501 PIN COR
RV1502 PIN PHASE
RV1505 CORNER COR
IC1501 EAST - WEST CORRECTION
RV1506 V CENT
D1502
H CENT
L810 PMT
L805
T801 H.D.T
H DRIVER Q805
H OUT Q804
V CENT Q505,506
CANAL +BLK SW Q507
IC502 V OUT
FB GEN
BOOST
ABL Q307
CANAL +BLK Q301
ON SCREEN DISPLAY SW FAS PICTURE MUTE SW ON SCREEN DISPLAY SW Q302,303,304
T802 FBT
D801
D802
D803
ABL AMP Q801
D/A CONVERTER IC302
HUE BUFFER Q320
PAL/NTSC SW Q345
SECAM SW Q344
IC304 COLOR PROCESSOR
SECAM SW NTSC(3.58) SW NTSC(4.43) SW Q335,336,337
NTSC 3.58 SW Q348
SYSTEM SW Q373
SECAM TRAP SW NTSC TRAP SW Q341,342
CLK BUFFER Q324
X302
IC303 1H DELAY
IC301 VIDEO PROCESSOR
MUTE Q308
ST-BY SW Q306
VIDEO AMP Q352,355
BUFFER Q354,353
IC315 A/D CONVERTER
IC311 D/A CONVERTER
IC310 COMB CONTROL
IC305 REGULATOR
IC306 Y/C SW
PAL SW Q347
C OUT Q343
VIDEO BUFFER Q330
VIDEO CLAMP Q358
CLAMP BIAS Q357,359
C IN Q332
Y IN Q329
VIDEO IN Q328
C OUT Q331
C BUFFER Q363,364
Y OUT Q327
Y BUFFER Q362,365
Y/C SW Q333
VM MUTE Q1303
Y IN Q346
Y BUFFER Q367
CLK AMP -3,2,1 Q323,322,321
SHP BUFFER Q366
VIDEO BUFFER Q356
SHP AMP Q368,369,370
Y BUFFER Q1301
Y BUFFER Q1302
IC308 Y SW
Y BUFFER Q340
Y BUFFER Q338,339
VM AMP Q372
CLK BUFFER Q360
CLK AMP Q350,361
ANTI PRIORITY SCART Q305
Y SW Q334
VM BUFFER Q371
SECAM SW Q310,311
IC312 MEMORY
IC313 MEMORY
RV702 H-STAT
RV701 SCREEN
R DRIVE Q702
R OUT Q703
ACO MEASURING Q704
G DRIVE Q705
G OUT Q706
ACO MEASURING Q707
B DRIVE Q708
B OUT Q709
ACO MEASURING Q710
D702
D703
D704
AUTO CUTOFF
V901
DY ASS'Y
KV-A2921D ONLY
PRE AMP Q751,752
PUSH-PULL OUT Q753,754
VM OUT
VM COIL

5-2. CIRCUIT BOARDS LOCATION


H1
VM
(KV-A2921D)
C
A
H2
IFG
F
B1
D
V
J1

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METALOXIDE
	: RB	NONFLAMMABLE CEMENT
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

5-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

— Conductor Side —

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms. kΩ = 1000Ω, MΩ = 1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power 1/4W

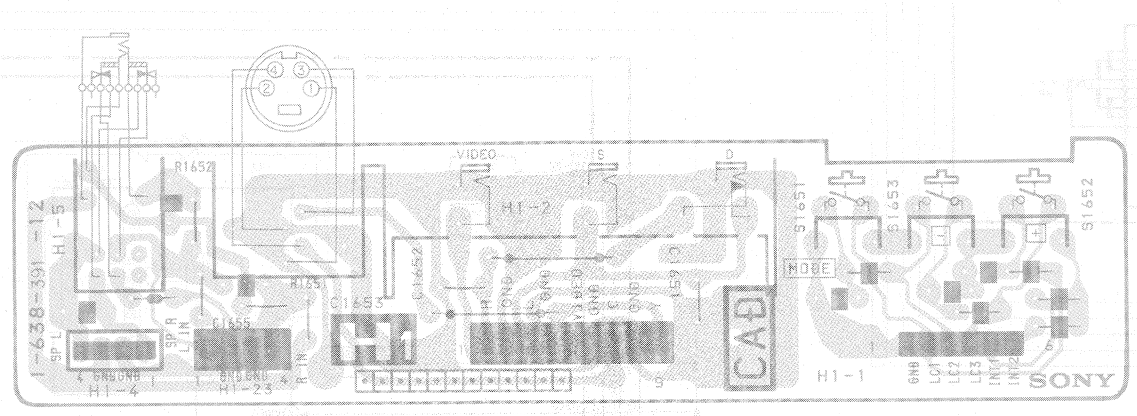
- METAL FILM (:RN) resistors in 1%, 1/6W unless otherwise secified.
- ▭: nonflammable resistor.
- △: internal component.
- ▭: panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⏚: earth-ground.
- ⊥: earth-chassis.
- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- ▬: B+ bus.
- ▒: signal path. (RF)
- Circuled numbers are waveform references.

Note:
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

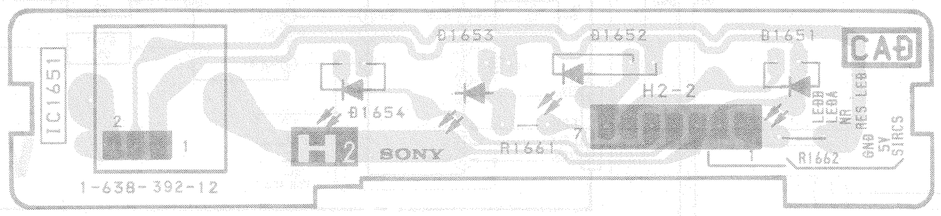
H1 [CONTROL SW, AV INPUT, HEADPHONE] **H2** [SIRCS RECEIVER, INDICATOR] **F** [AC IN, POWER SW]

A [TUNER

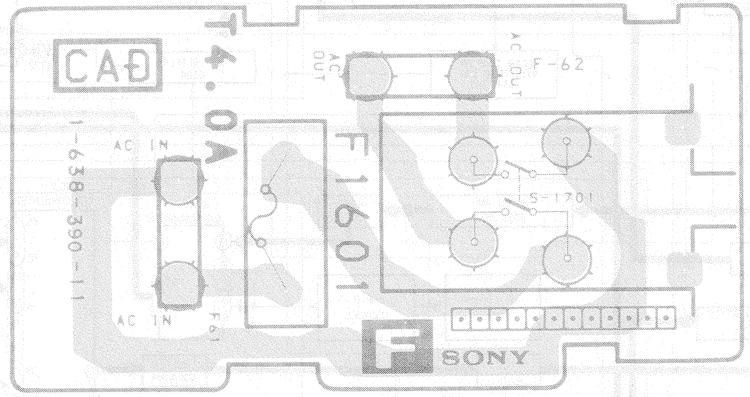
— H1 Board —


R1652
VIDEO
S
D
H1-2
S1651
S1653
S1652
MODE
1-638-391-12
H1-5
SP L
SP R
L IN
R1651
C1653
C1652
C1655
H1-4
H1-23
H1
CAD
H1-1
SONY

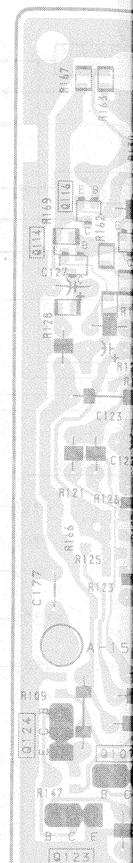
— H2 Board —


IC1651
D1653
D1652
D1651
CAD
H2-2
D1654
H2
SONY
R1661
R1662
1-638-392-12

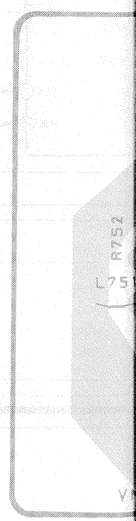
— F Board —


CAD
T4.0A
AC OUT
F-62
1-638-390-11
AC IN
F1601
S-1701
AC IN
F
SONY

— A Board

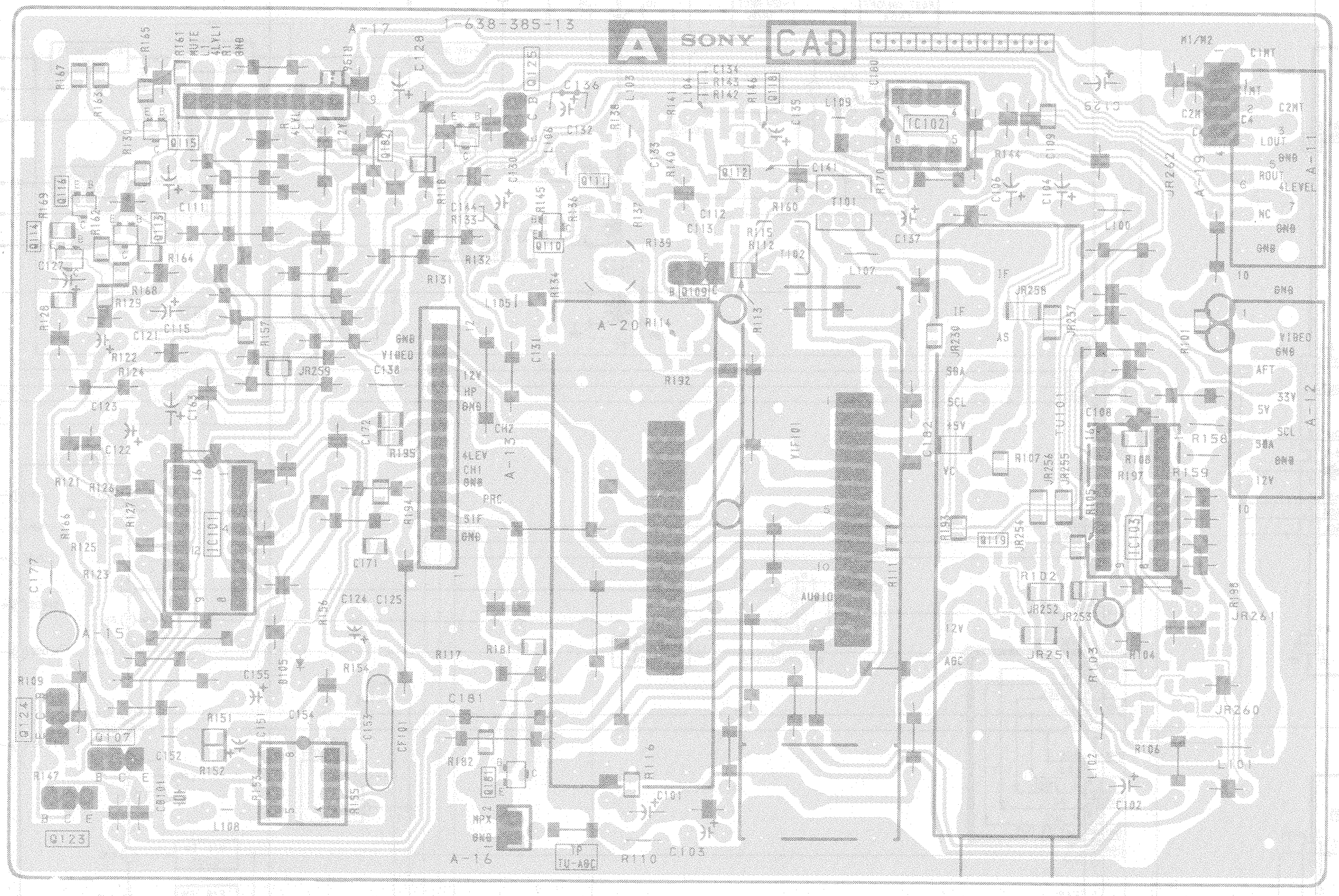


— VM Bo

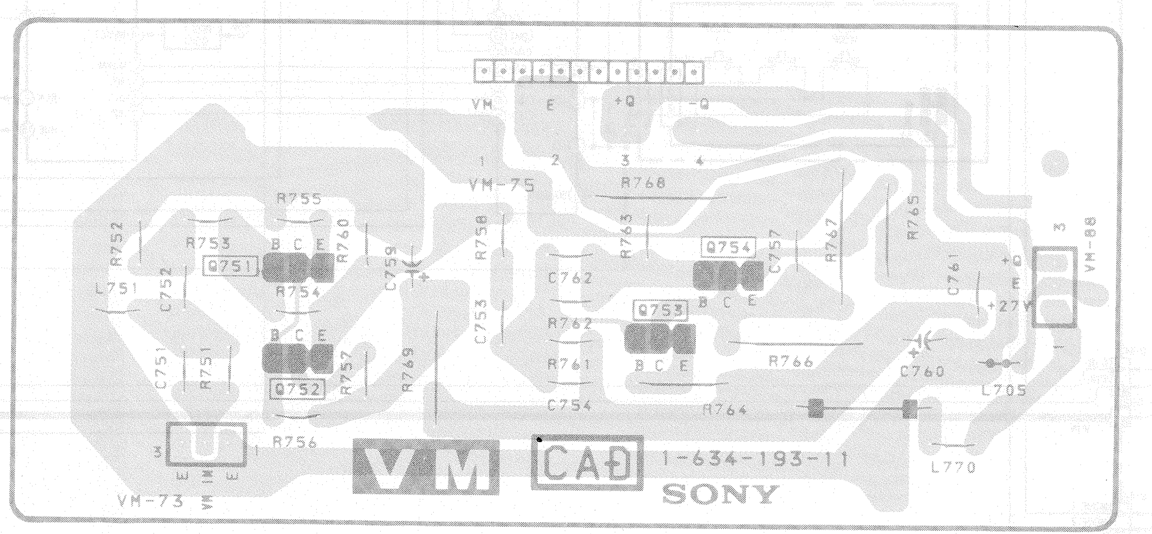


A [TUNER, SIF, VIF] VM [VM AMP]

— A Board —

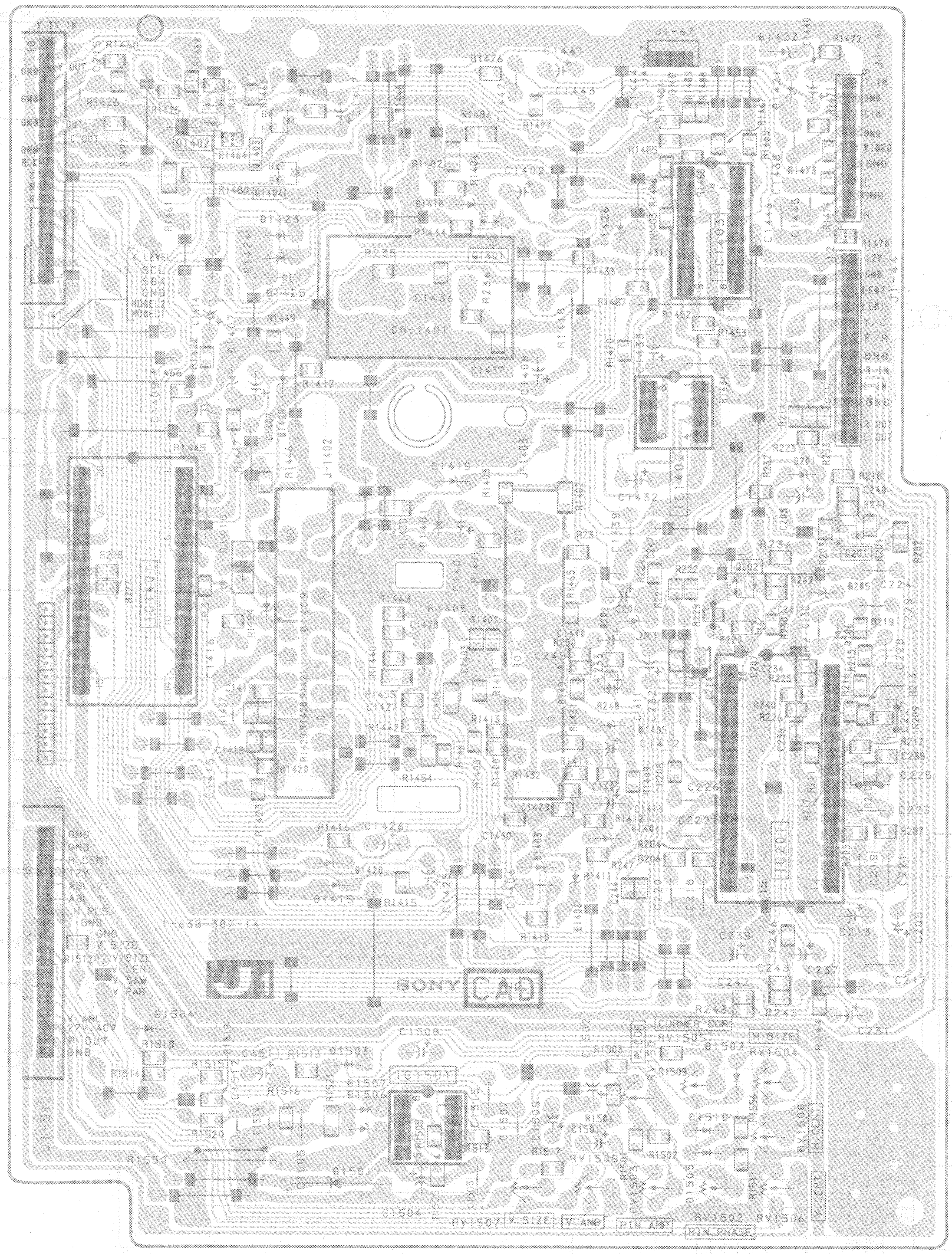

A-17
1-638-385-13
A
SONY
CAD
IC101
IC102
IC103
A-20
A-15
A-16
A-11
A-12
A-19

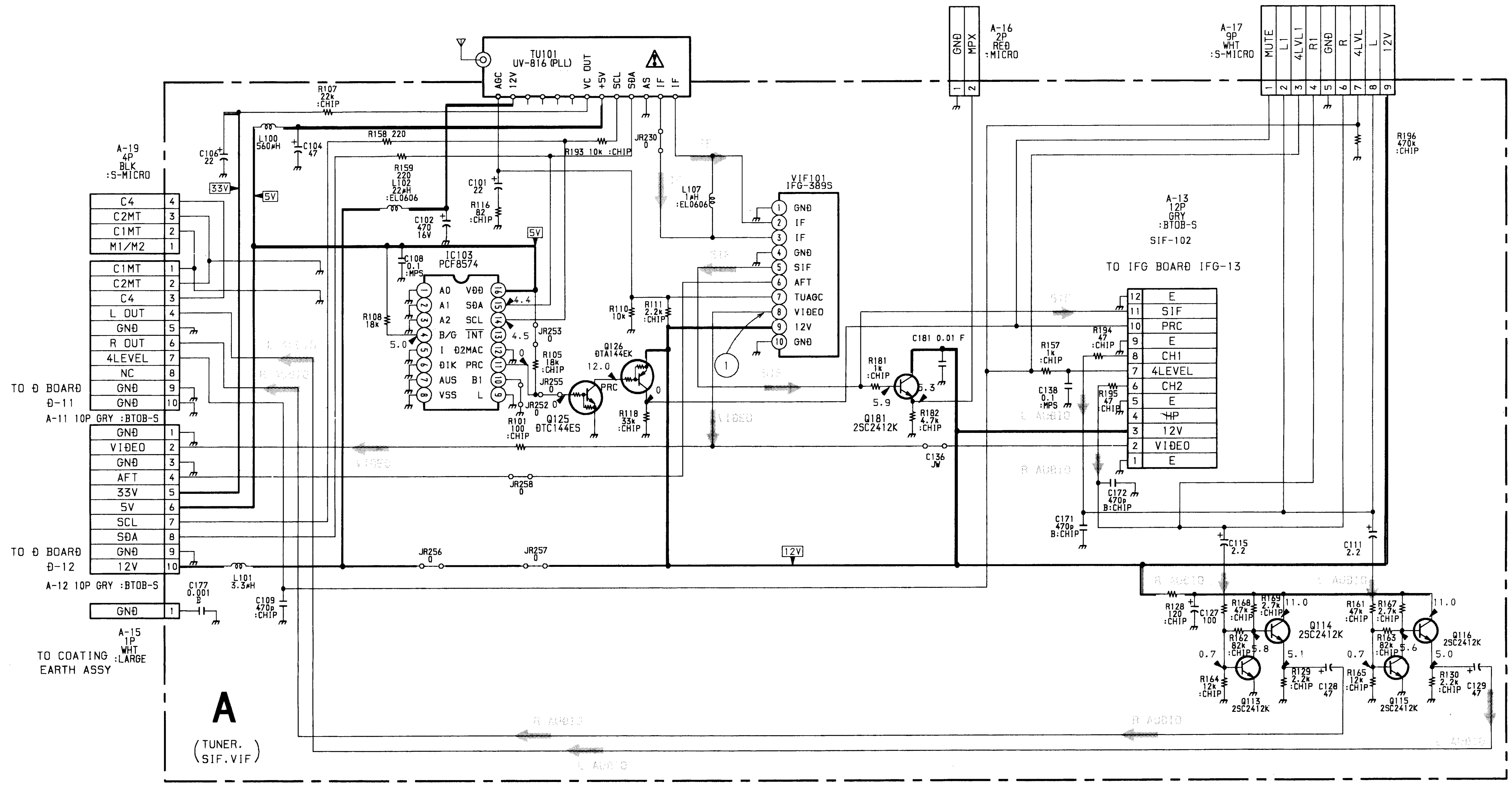
— VM Board — (KV-A2921D ONLY)


VM
E
+Q
-Q
VM-75
VM-73
VM-88
Q751
Q752
Q753
Q754
+27V
VM
CAD
1-634-193-11
SONY

J1 [AUDIO CONTROL, AV INPUT Y/C INPUT, SCART VIDEO OUT, EAST-WEST CORRECTION]

— J1 Board —


J1-67
J1-41
J1-44
J1-43
J1-51
IC1401
IC1402
IC1403
IC1501
IC201
CN-1401
1-638-387-14
J1
SONY
CAD
CORNER COR
H.SIZE
H.CENT
V.SIZE
V.ANG
PIN AMP
PIN PHASE
V.CENT

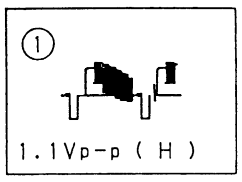

TU101
UV-816 (PLL)
AGC
12V
VC OUT
+5V
SCL
SDA
AS
IF
IF
VIF101
IFG-389S
IC103
PCF8574
Q125
DTC144ES
Q126
DTA144EK
Q181
2SC2412K
Q113
2SC2412K
Q114
2SC2412K
Q115
2SC2412K
Q116
2SC2412K
A-19
4P
BLK
:S-MICRO
C4
C2MT
C1MT
M1/M2
L OUT
GND
R OUT
4LEVEL
NC
TO D BOARD
D-11
A-11 10P GRY :BTOB-S
VIDEO
AFT
33V
5V
SCL
SDA
12V
TO D BOARD
D-12
A-12 10P GRY :BTOB-S
A-15
1P
WHT
:LARGE
TO COATING
EARTH ASSY
A-16
2P
RED
:MICRO
GND
MPX
A-17
9P
WHT
:S-MICRO
MUTE
L1
4LVL1
R1
GND
R
4LVL
L
12V
A-13
12P
GRY
:BTOB-S
SIF-102
TO IFG BOARD IFG-13
E
SIF
PRC
CH1
4LEVEL
CH2
HP
12V
VIDEO
A
(TUNER.
SIF.VIF)

B-SS4172<AEP>-A..

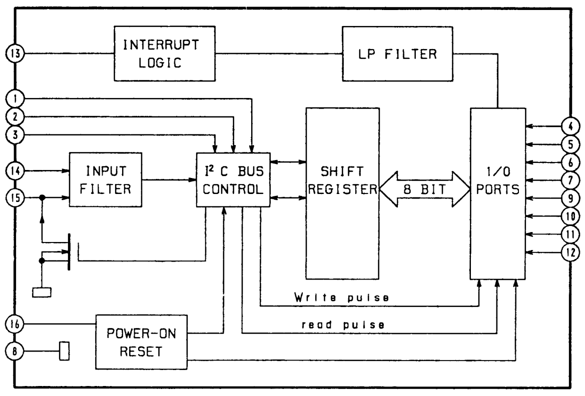
— A Board —

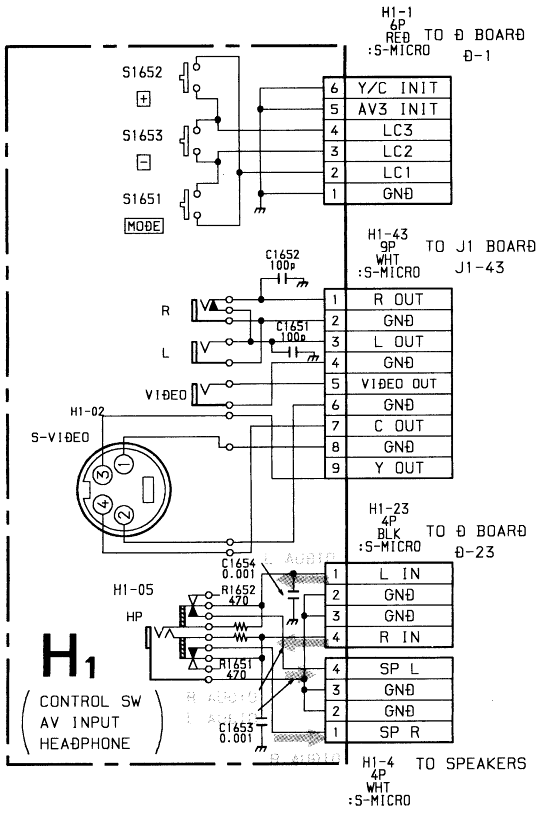
IC103	PCF8574	EXPANDER
Q113	2SC2412K	AUDIO AMP
Q114	2SC2412K	AUDIO AMP
Q115	2SC2412K	AUDIO AMP
Q116	2SC2412K	AUDIO AMP
Q125	DTC144ES	MUTE SW
Q126	DTA144EK	MUTE SW
Q181	2SC2412K	NICAM BUFFER

— A Board —

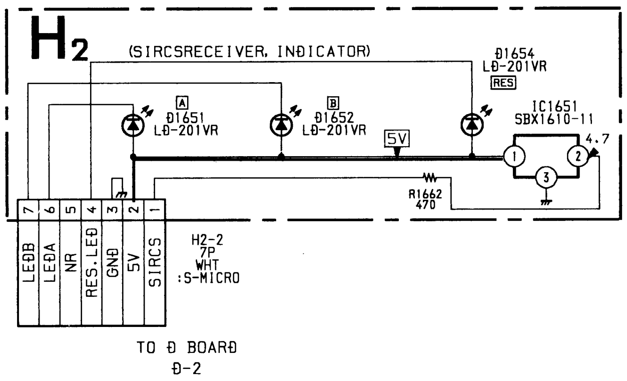


A BOARD IC103 PCF8574


INTERRUPT
LOGIC
LP FILTER
INPUT
FILTER
I² C BUS
CONTROL
SHIFT
REGISTER
8 BIT
I/O
PORTS
Write pulse
read pulse
POWER-ON
RESET


H1-1
6P
RED
:S-MICRO
TO D BOARD
D-1
S1652
S1653
S1651
MODE
Y/C INIT
AV3 INIT
LC3
LC2
LC1
GND
H1-43
9P
WHT
:S-MICRO
TO J1 BOARD
J1-43
R OUT
L OUT
VIDEO OUT
C OUT
Y OUT
S-VIDEO
H1-23
4P
BLK
:S-MICRO
TO D BOARD
D-23
L IN
R IN
SP L
SP R
HP
H1
CONTROL SW
AV INPUT
HEADPHONE
H1-4
4P
WHT
:S-MICRO
TO SPEAKERS

B-SS4161<UK.>-H1.


H2
(SIRCSRECEIVER, INDICATOR)
D1651
LD-201VR
D1652
LD-201VR
D1654
LD-201VR
RES
IC1651
SBX1610-11
R1662
470
LEDB
LEDA
NR
RES.LED
GND
5V
SIRCS
H2-2
7P
WHT
:S-MICRO
TO D BOARD
D-2

B-SS4161<UK.>-H2.

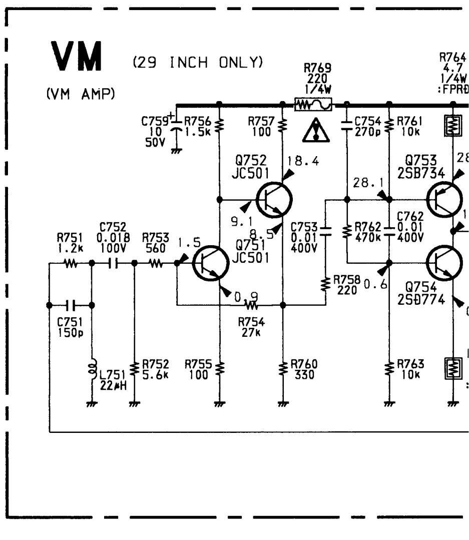
— H2 Board —

IC1651	SBX1610-11	INFRARED RECIVER
D1651	LD-201VR	AUDIO CHANNEL A INDICATOR
D1652	LD-201VR	AUDIO CHANNEL B INDICATOR
D1654	LD-201VR	RESET INDICATOR

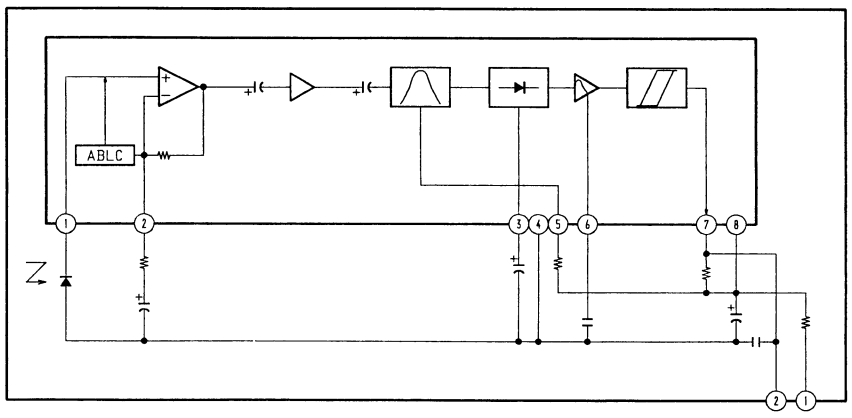
— VM Board — (KV-A2921D ONLY)

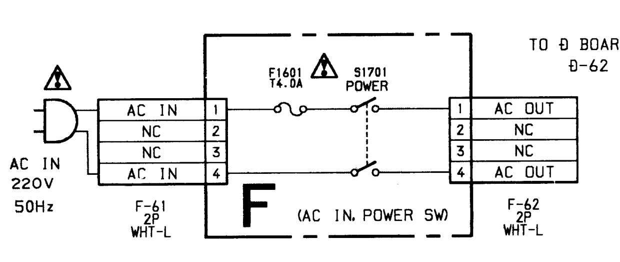
Q751	JC501	REF-AMP
Q752	JC501	REF-AMP
Q753	2SB734	PUSH-PULL
Q754	2SD774	PUSH-PULL

— VM Board — (KV-A2921D ONLY)

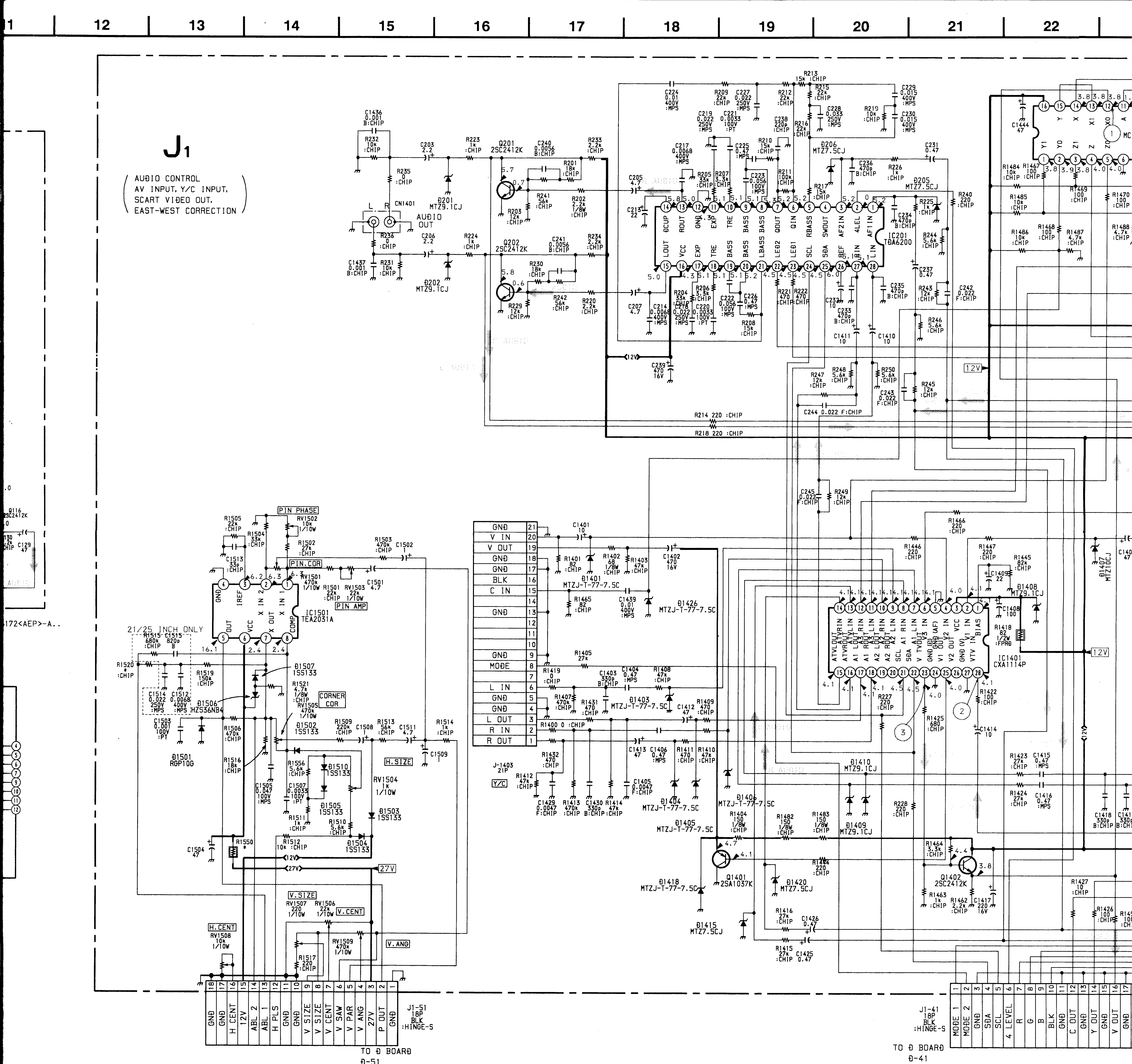

VM
(29 INCH ONLY)
(VM AMP)
R769
220
1/4W
Q752
JC501
Q751
JC501
Q753
2SB734
Q754
2SD774

H2 BOARD IC1651 SBX1610-11




TO D BOARD
D-62
AC IN
NC
NC
AC IN
F1601
T4.0A
S1701
POWER
AC OUT
NC
NC
AC OUT
AC IN
220V
50Hz
F-61
2P
WHT-L
F
(AC IN, POWER SW)
F-62
2P
WHT-L

B-SS4172 <AEP>-F



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J1
AUDIO CONTROL
AV INPUT, Y/C INPUT,
SCART VIDEO OUT,
EAST-WEST CORRECTION
CN1401
AUDIO OUT
Q201 2SC2412K
Q202 2SC2412K
D201 MTZ9.1CJ
D202 MTZ9.1CJ
IC201 TDA6200
D205 MTZ7.5CJ
D206 MTZ7.5CJ
12V
PIN PHASE
PIN.COR
PIN AMP
IC1501 TEA2031A
21/25 INCH ONLY
CORNER COR
H.SIZE
V.SIZE
V.CENT
H.CENT
V.ANG
27V
D1501 RGP10G
D1506 HZS36NB4
IC1401 CXA1114P
Q1401 2SA1037K
Q1402 2SC2412K
J-1403 21P
Y/C
J1-51 18P BLK :HINGE-S
TO D BOARD D-51
J1-41 18P BLK :HINGE-S
TO D BOARD D-41
GND
V IN
V OUT
BLK
C IN
MODE
L IN
L OUT
R IN
R OUT
H CENT
ABL 2
ABL 1
H PLS
V SIZE
V CENT
V SAW
V PAR
V ANG
P OUT
MODE 1
MODE 2
SDA
SCL
4 LEVEL
R
G
B
C OUT
Y OUT

ATOR
ATOR

921D ONLY)

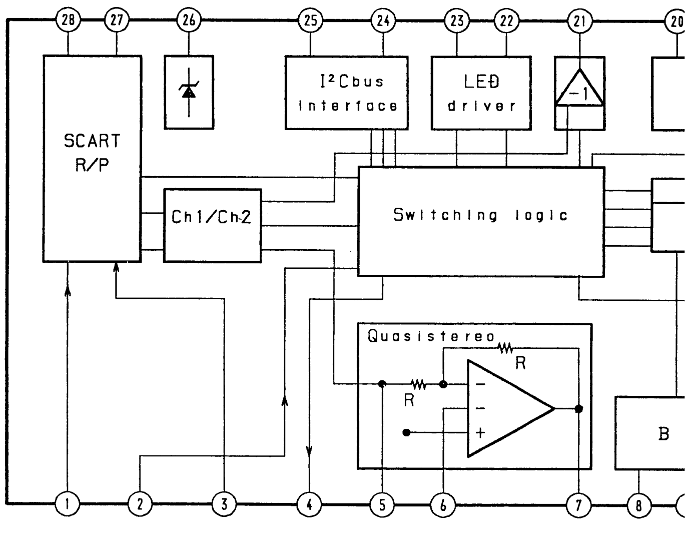
REF-AMP
REF-AMP
PUSH-PULL OUT
PUSH-PULL OUT

21D ONLY)

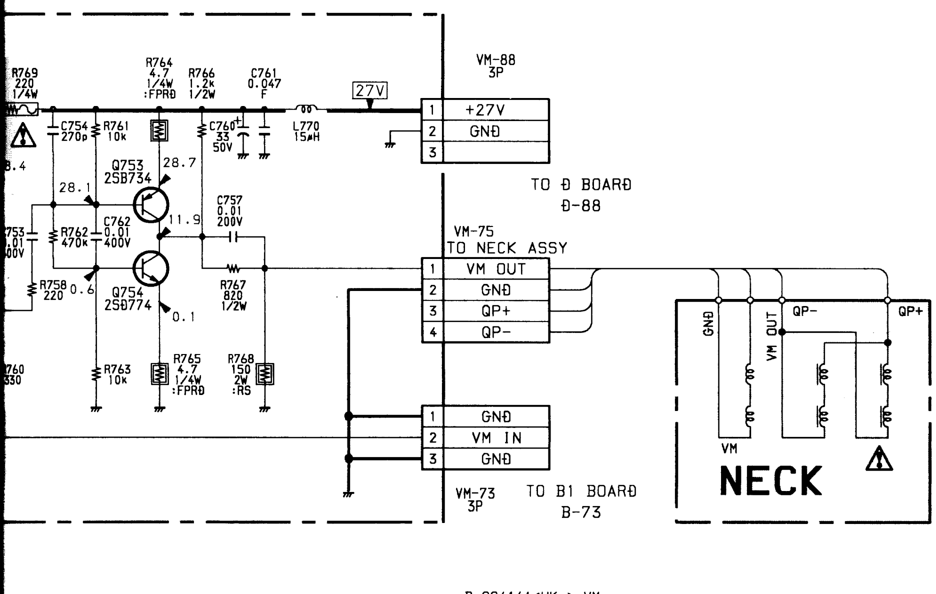
— J1 BOARD * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
C1512	0.0068 400V	0.0068 400V	——
C1514	0.022 250V	0.022 250V	——
C1515	820P	820P	——
R1515	680K	680K	——
R1520	470K 1/10W	470K 1/10W	390K 1/10W
R1550	JW (15)	JW (15)	1 1W

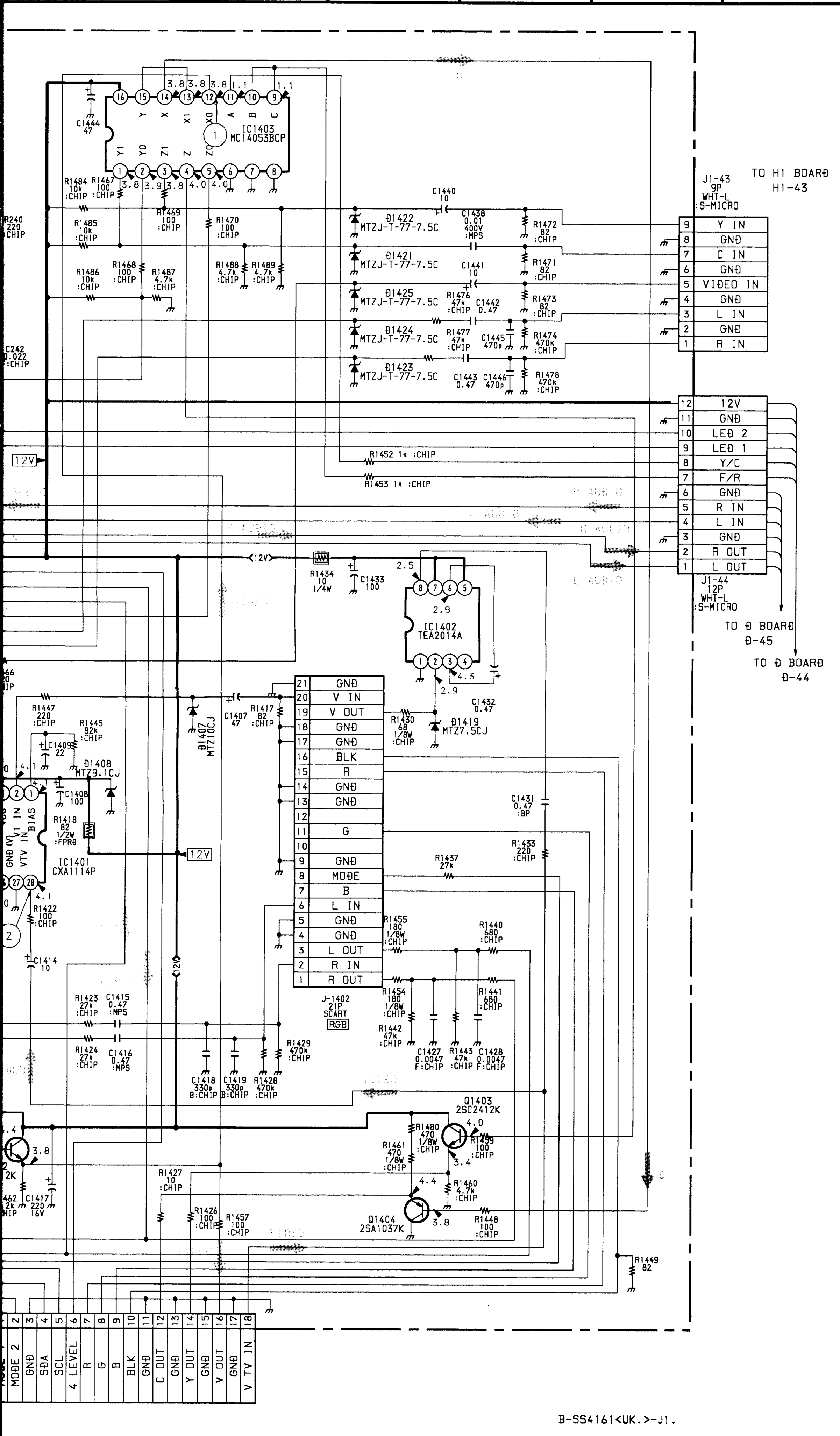
J1 BOARD IC201 TDA6200

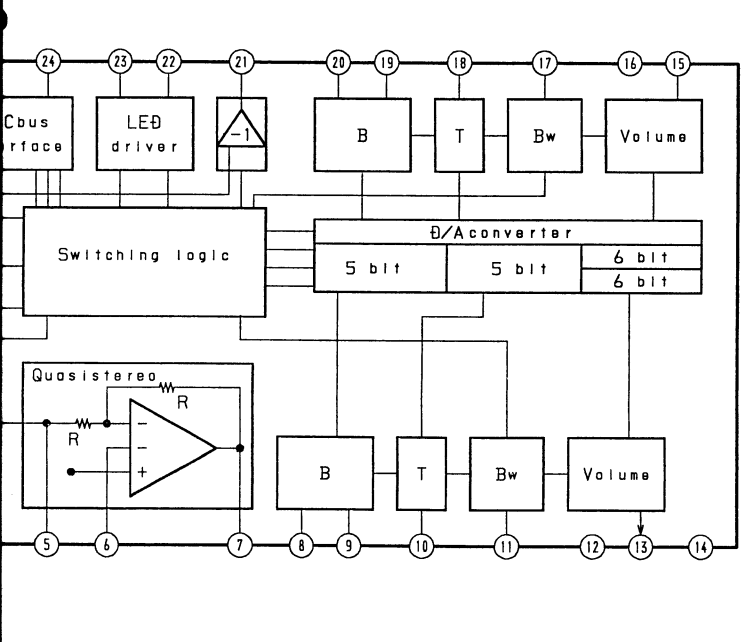


SCART R/P
I²C bus interface
LED driver
Ch1/Ch2
Switching logic
Quasistereo
R
B



VM-88 3P
+27V
GND
TO D BOARD D-88
27V
Q753 2SB734
Q754 2SD774
L770 15μH
VM-75 TO NECK ASSY
VM OUT
GND
QP+
QP-
GND
VM IN
VM-73 3P
TO B1 BOARD B-73
NECK
VM


IC1403
MC14053BCP
IC1402
TEA2014A
IC1401
CXA1114P
J1-43
9P
WHT-L
:S-MICRO
TO H1 BOARD
H1-43
Y IN
GND
C IN
GND
VIDEO IN
GND
L IN
GND
R IN
12V
GND
LED 2
LED 1
Y/C
F/R
GND
R IN
L IN
GND
R OUT
L OUT
J1-44
12P
WHT-L
:S-MICRO
TO D BOARD
D-45
TO D BOARD
D-44
J-1402
21P
SCART
RGB
GND
V IN
V OUT
GND
GND
BLK
R
GND
GND
G
GND
MODE
B
L IN
GND
GND
L OUT
R IN
R OUT
Q1403
2SC2412K
Q1404
2SA1037K
D1421 MTZJ-T-77-7.5C
D1422 MTZJ-T-77-7.5C
D1423 MTZJ-T-77-7.5C
D1424 MTZJ-T-77-7.5C
D1425 MTZJ-T-77-7.5C
D1407 MTZ10CJ
D1408 MTZ9.1CJ
D1419 MTZ7.5CJ
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C OUT
GND
Y OUT
GND
V OUT
GND
V TV IN
B-SS4161<UK.>-J1.


24
23
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18
17
16
15
Cbus
rface
LED
driver
-1
B
T
Bw
Volume
Switching logic
D/Aconverter
5 bit
5 bit
6 bit
6 bit
Quasistereo
R
R
B
T
Bw
Volume
5
6
7
8
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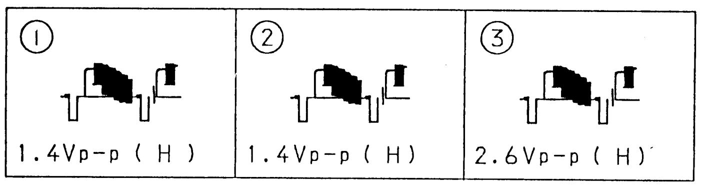
14

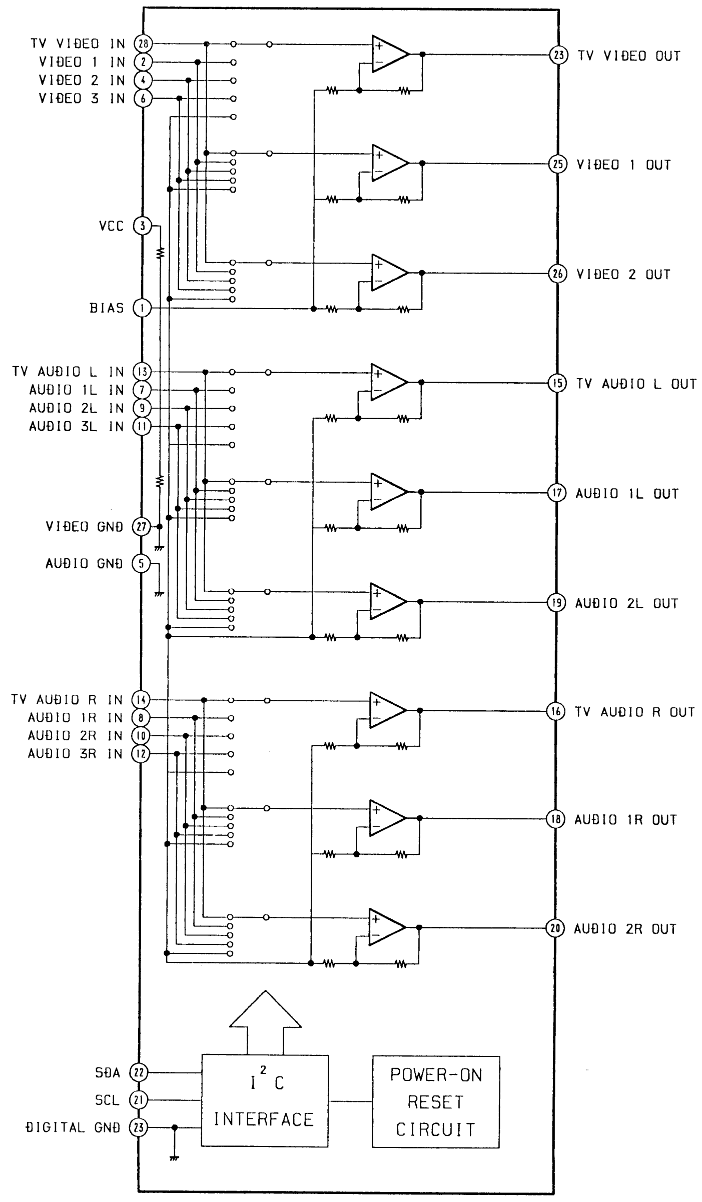
— J1 Board —

IC201	TDA6200	AUDIO CONTROL
IC1401	CXA1114P	AV SW
IC1402	TEA2014A	SCART VIDEO OUT
IC1403	MC14053BCP	COMPOSITE Y/C SW
IC1501	TEA2031A	EAST-WEST CORRECTION
Q201	2SC2412K	AUDIO R BUFF
Q202	2SC2412K	AUDIO L BUFF
Q1401	2SA1037K	VIDEO OUT
Q1402	2SC2412K	VIDEO OUT BUFF
Q1403	2SC2412K	Y OUT BUFF
Q1404	2SA1037K	C OUT BUFF
D201	MTZJ-T-77-9.1C	PROTECT
D202	MTZJ-T-77-9.1C	PROTECT
D205	MTZJ-T-77-7.5C	PROTECT
D206	MTZJ-T-77-7.5C	PROTECT
D1401	MTZJ-T-77-7.5C	PROTECT
D1403	MTZJ-T-77-7.5C	PROTECT
D1404	MTZJ-T-77-7.5C	PROTECT
D1405	MTZJ-T-77-7.5C	PROTECT
D1406	MTZJ-T-77-7.5C	PROTECT
D1407	MTZN-T-77-10C	PROTECT
D1408	MTZJ-T-77-9.1C	REG
D1409	MTZJ-T-77-9.1C	PROTECT
D1410	MTZJ-T-77-9.1C	PROTECT
D1415	MTZJ-T-77-7.5C	PROTECT
D1418	MTZJ-T-77-7.5C	PROTECT
D1419	MTZJ-T-77-7.5C	PROTECT
D1420	MTZJ-T-77-7.5C	PROTECT
D1421	MTZJ-T-77-7.5C	PROTECT
D1422	MTZJ-T-77-7.5C	PROTECT
D1423	MTZJ-T-77-7.5C	PROTECT
D1424	MTZJ-T-77-7.5C	PROTECT
D1425	MTZJ-T-77-7.5C	PROTECT
D1426	MTZJ-T-77-7.5C	PROTECT
D1501	RGP10GPKG23	PROTECT
D1502	1SS133	DECOUPLING H SIZE
D1503	1SS133	CLIPPING V PARABORA
D1504	1SS133	CLIPPING H PULSE
D1505	1SS133	REG
D1506	HZS36NB4TD	PROTECT
D1507	1SS133	PROTECT
D1510	1SS133	REG

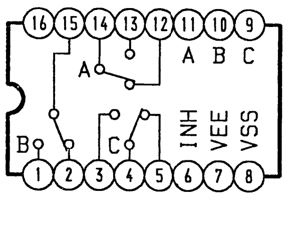
— J1 Board —



J1 BOARD IC1401 CXA1114P


TV VIDEO IN 20
VIDEO 1 IN 2
VIDEO 2 IN 4
VIDEO 3 IN 6
VCC 3
BIAS 1
TV AUDIO L IN 13
AUDIO 1L IN 7
AUDIO 2L IN 9
AUDIO 3L IN 11
VIDEO GND 27
AUDIO GND 5
TV AUDIO R IN 14
AUDIO 1R IN 8
AUDIO 2R IN 10
AUDIO 3R IN 12
SDA 22
SCL 21
DIGITAL GND 23
23 TV VIDEO OUT
25 VIDEO 1 OUT
26 VIDEO 2 OUT
15 TV AUDIO L OUT
17 AUDIO 1L OUT
19 AUDIO 2L OUT
16 TV AUDIO R OUT
18 AUDIO 1R OUT
20 AUDIO 2R OUT
I²C
INTERFACE
POWER-ON
RESET
CIRCUIT

J1 BOARD IC1403 MC14053BCP


16
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A B C
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INH
VEE
VSS
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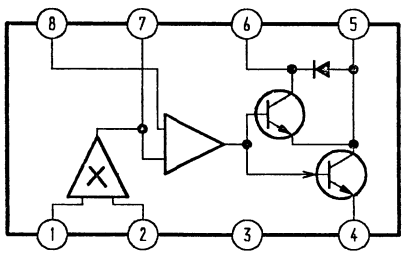
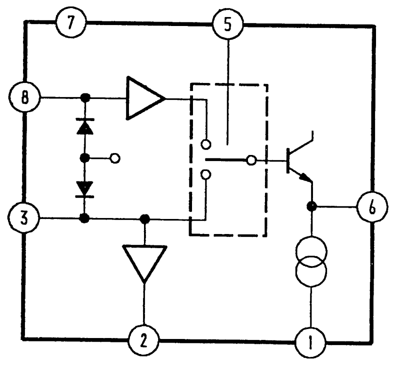
J1 BOARD IC1501 TEA2031A



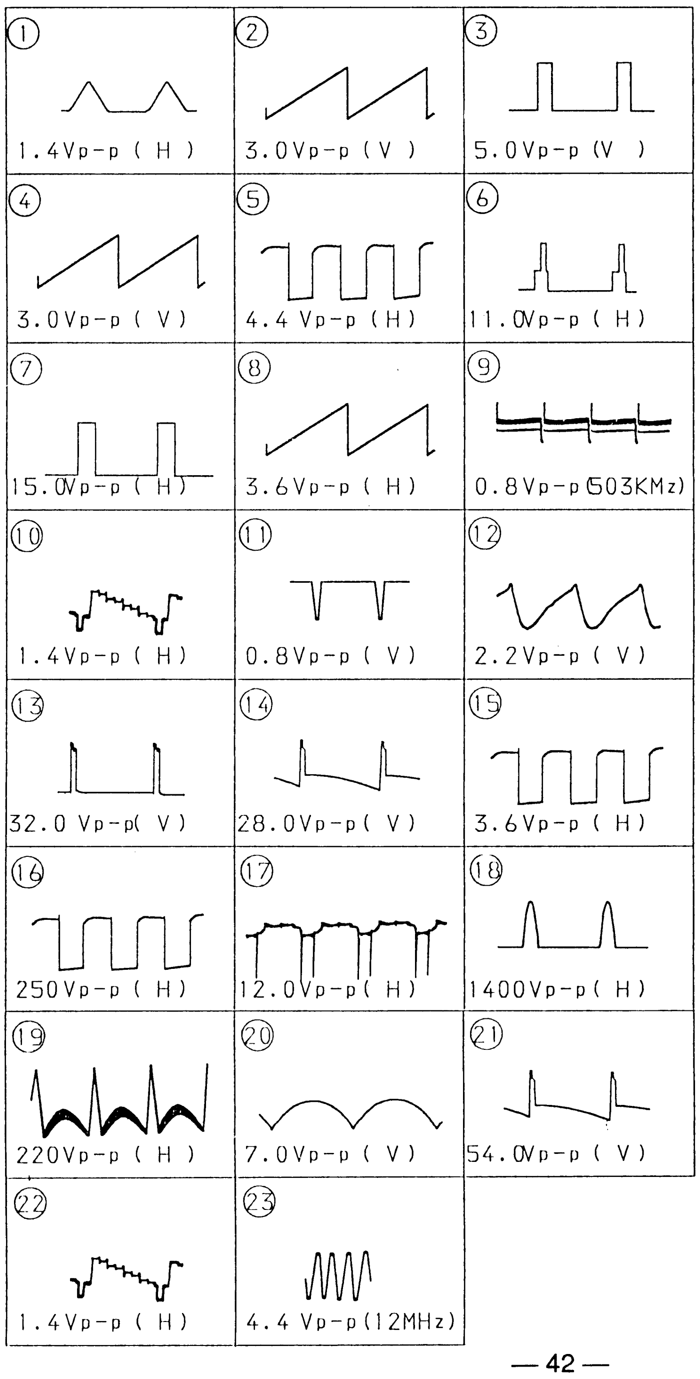
J1 BOARD IC1402 TEA2014A



— D BOARD * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
C519	0.47	0.47	0.33
C526	27P	27P	22P
C536	4.7 16V	10 16V	10 16V
C617	220 25V	100 50V	100 50V
C620	1 63V	0.47 50V	0.47 50V
C811	1 200V	2 200V	2 200V
C815	1 200V	1 200V	0.82 200V
C817	0.0106 1.4KV	0.015 1.4KV	0.017 1.4KV
C821	680P 2KV	680P 2KV	470P 2KV
R525	1K 1/10W	1K 1/10W	——
R531	——	120K 1/10W	120K 1/10W
R532	——	——	——
R533	180 1/10W	0 1/10W	0 1/10W
R535	4.7M 1/4W	2.2M 1/4W	2.2M 1/4W
R545	39K 1/10W	22K 1/10W	22K 1/10W
R547	5.6K 1/10W	3.3K 1/10W	3.3K 1/10W
R548	1.2 1W	1 1W	1 1W
R549	470 2W	390 2W	390 2W
R552	1.2K 1W	——	——
R561	——	——	270K 1/10W
R570	——	——	680 1/10W
R600	——	1 1/4W	1 1/4W
R603	15 3W	12 3W	12 3W
R607	4.7K 1/10W	4.7K 1/10W	5.6K 1/10W
R631	27K 2W	27K 2W	——
R643	0.15 2W	0.12 2W	0.12 2W
R811	100 1W	22 2W	22 2W
R812	75K 1/2W	68K 1/2W	51K 1/2W
R825	1 1W	0.47 1W	0.47 1W
R5503	4.7 1/10W	4.7 1/10W	10 1/10W
R5506	——	——	12K 1/10W
JW202	——	——	5MM
JW203	5MM	5MM	——
JW204	5MM	5MM	——
JW205	——	——	5MM
JW206	5MM	5MM	——
JW207	5MM	5MM	——
JW216	15MM	15MM	——
JW229	10MM	10MM	——
L801	——	——	3.9MH
D88	——	——	3P CONNECTOR
D271	MTZJ12C	MTZJ13B	MTZJ13B
D506	DA204K	DA204K	——
D509	——	1SS133	1SS133
D514	JW (5)	JW (5)	1SS133
D515	——	——	1SS133
D807	——	ERC06-15S	ERC06-15S
D808	ERD28-08S	ERD29-08J	ERD29-08J

— D Board —



— D Board —

IC001	SDA20560-A012	TUNING CTL
IC002	MC14051BCP	ON SCREEN DISPLAY
IC003	BA4558	AFT COMPARATOR
IC005	SDA2546	MY MEMORY
IC251	TDA2050	AUDIO OUT (L)
IC261	TDA2050	AUDIO OUT (R)
IC501	TEA2028B	DEFLECTION PROCESSOR
IC502	TDA8170	V OUT
IC601	TEA2260	PRIMARY SMRS CTL
IC604	TEA7605	+5V REG
IC608	MC7812CT	+12V REG
Q001	DTC144EK	50/60Hz SW
Q002	DTC144EK	BLK SW
Q003	2SA1037K	SYNC SEPARATOR
Q004	2SA1037K	SYNC SEPARATOR
Q005	DTC144EK	Y/C SW
Q006	DTC144EK	FRONT/REAR SW
Q007	2SC2412K	MODE 2 SWITCH
Q008	2SC2412K	MODE 1 SWITCH
Q009	2SC2412K	MUTE SW
Q010	2SC2412K	RESET
Q251	2SC2412K	AUDIO MUTE
Q261	2SC2412K	AUDIO MUTE
Q271	2SC2412K	VOLTAGE DETECT
Q502	2SA1037K	CONSTANT CURRENT SOURCE
Q505	2SD774	V CENT
Q506	2SB734	V CENT
Q507	2SA1037K	CANAL +BLK
Q598	2SA1037K	VIDEO AMP
Q601	2SB1357T114EF	STBY SW
Q602	2SD1548	REG OUT
Q603	2SB1357T114EF	STBY SW
Q604	2SA1037K	FAST ON/OFF
Q605	2SC2412K	STBY SW
Q606	2SC2412K	STBY SW
Q607	2SD2096-EF	+12V REG
Q608	2SC2412K	STBY SW
Q609	2SD789-3	STBY SW
Q801	2SC2412K	ABL AMP
Q804	2SD1941	H OUT
Q805	2SC2688	H DRIVER

D001	MTZJ6.8C	PROTECT
D002	MTZJ6.8C	PROTECT
D003	1SS133	HUE CTL
D005	MTZJ5.6B	PROTECT
D006	MTZJ33A	VC VOLTAGE REGULATION
D007	MTZJ3.9B	PROTECT RESET
D009	MTZJ5.6B	CLIPPING SYNC LEVEL
D010	MTZJ6.2B	PROTECT
D011	MTZJ6.2B	PROTECT
D012	1SS133	PROTECT
D013	MTZJ6.8C	PROTECT
D271	RD12ES-B2	VOLTAGE DETECT (21 INCH ONLY)
D271	MTZJ13B	VOLTAGE DETECT (25/29 INCH ONLY)
D272	1SS133	DECOUPING MUTE AUDIO
D501	1SS133	SOFT START
D504	GP08DPKG23	V PULSE OUT
D506	DA204K	CURRENT REG (21/25 INCH ONLY)
D508	1SS133	CANAL +BLK LEVEL
D509	1SS133T-77	V LIN (25/29 INCH ONLY)
D511	GP08DPKG23	PROTECT
D512	GP08DPKG23	PROTECT
D513	MTZJ4.7B	PROTECT
D514	1SS133T-77	PROTECT (29 INCH ONLY)
D515	1SS133T-77	PROTECT (29 INCH ONLY)
D601	D4SB60L-F	AC RECT
D602	RGP10GPKG23	REF RECT
D603	GP08DPKG23	SMPS DRIVE 1
D604	GP08DPKG23	SMPS DRIVE 2
D605	GP08DPKG23	SMPS DRIVE 3
D606	RGP10GPKG23	+12V RECT
D607	RGP10GPKG23	REF RECT
D608	ERC25-06S	PLUSE CLIPPER
D609	MTZJ33A	FAST ON/OFF
D610	CTU-12S	+14V RECT
D611	ERD29-08J	+135V RECT
D612	CTU-12S	+7V RECT
D613	RGP15J-6040G23	AF V RECT-1
D614	RGP15J-6040G23	AF V RECT-2
D616	MTZJ6.2B	+12V REG
D617	1SS133	PROTECT
D618	MTZJ5.6B	+12V REF
D619	MTZJ33A	FAST ON/OFF-2
D620	DA204K	+12V REF
D621	MTZJ33A	FAST ON/OFF-3
D622	1SS133	PROTECT
D623	1SS133	DECOUPING STBY
D624	1SS133	DECOUPING DTBY
D630	MTZJ15A	+12V RECT
D801	RGP10GPKG23	+27V RECT
D802	RGP10GPKG23	+200V RECT
D803	RGP02-17PKG23	G2 RECT
D804	GP08DPKG23	H CENTER-1
D805	GP08DPKG23	H CENTER-2
D806	ERC06-15S	H DAMPER-1
D807	ERC06-15S	H DAMPER-2 (25/29 INCH ONLY)
D808	ERD28-08S	PIN DAMPER (21 INCH ONLY)
D808	ERD29-08S	PIN DAMPER (25/29 INCH ONLY)

— PICTURE TUBE * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
V901	A51JXH61X	A59JWC61X	A68JYL61X

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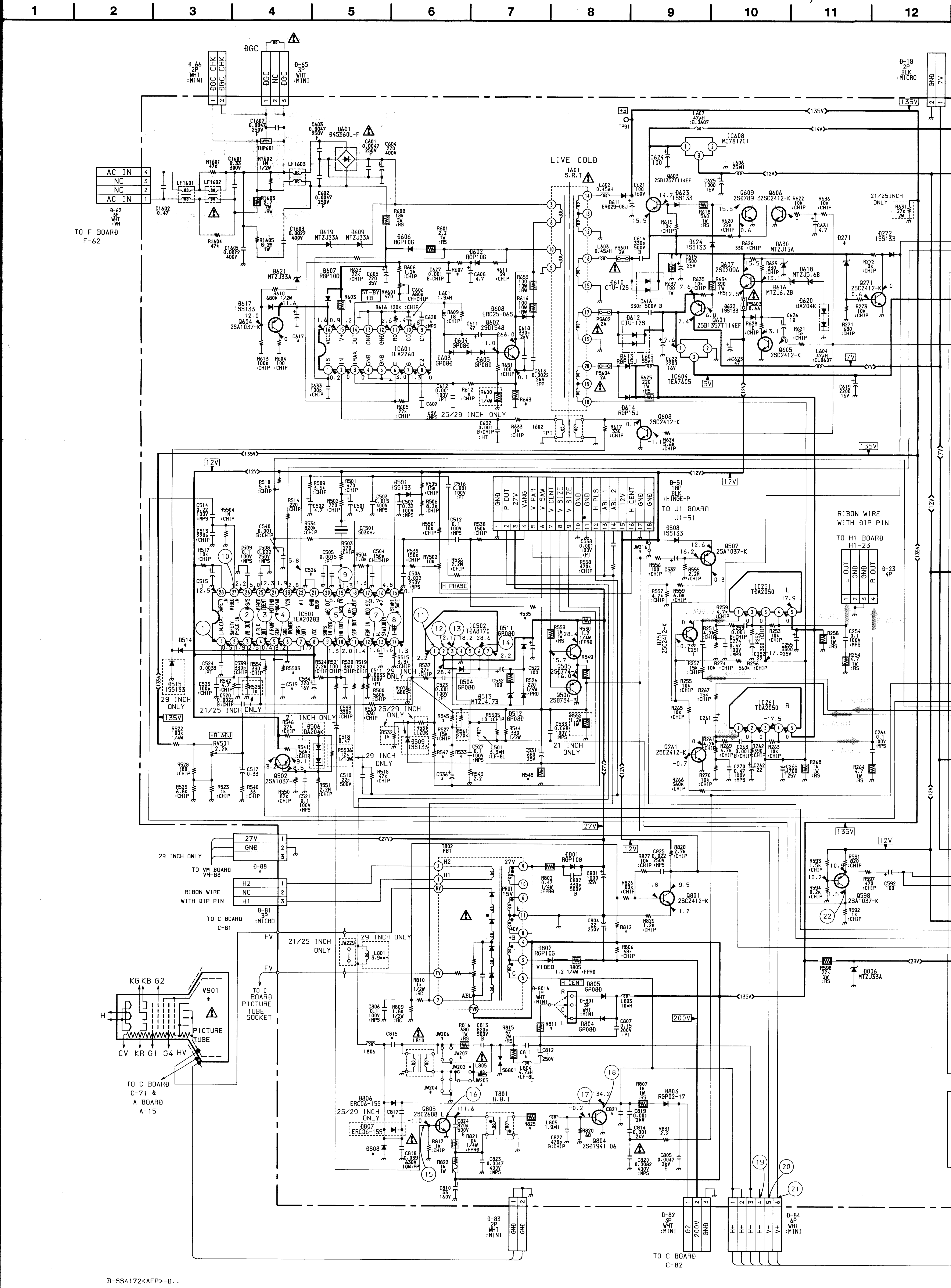
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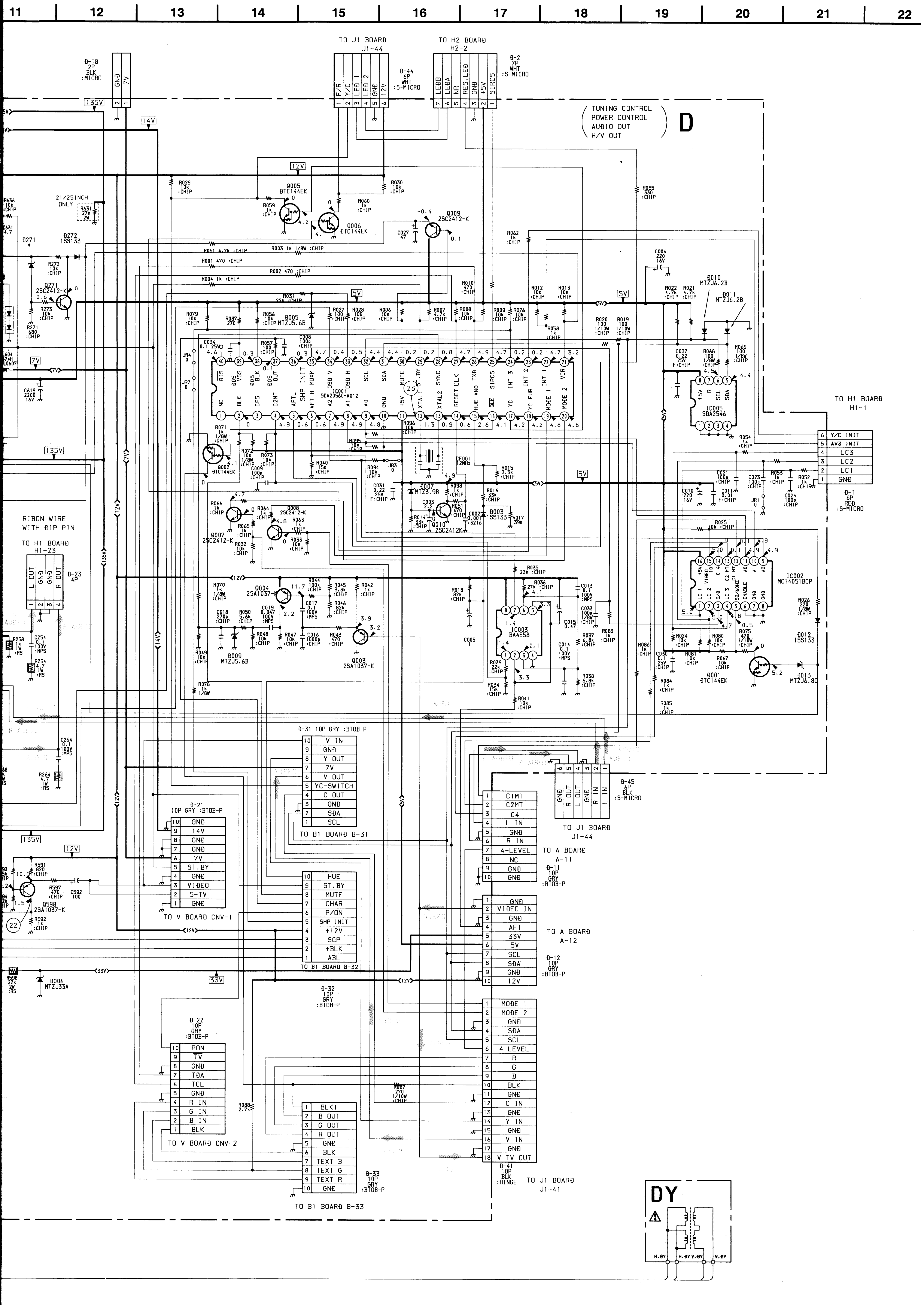
ÐGC
Ð-66 2P WHT :MINI
ÐGC CHK
Ð-65 3P WHT :MINI
AC IN
NC
NC
AC IN
Ð-62 3P WHT :VH
TO F BOARD F-62
LF1601
LF1602
LF1603
THP601
Ð601 D4SB60L-F
LIVE COLD
T601 S.R.T
IC601 TEA2260
ST-BY +B
25/29 INCH ONLY
IC608 MC7812CT
IC604 TEA7605
Q603 2SB1357T114EF
Q601 2SB1357T114EF
Q609 2SD789-3
Q606 2SC2412-K
Q607 2SD2096
Q605 2SC2412-K
Q604 2SA1037-K
Q602 2SD1548
Q608 2SC2412-K
Q271 2SC2412-K
21/25 INCH ONLY
Ð-18 2P BLK :MICRO
135V
12V
14V
7V
5V
27V
33V
200V
T602 TPT
IC501 TEA2028B
IC502 TDA8170
H PHASE
+B ADJ
RV501 2.2k
Q502 2SA1037-K
29 INCH ONLY
21/25 INCH ONLY
21 INCH ONLY
25/29 INCH ONLY
Ð-51 18P BLK :HINGE-P
TO J1 BOARD J1-51
GND
P OUT
27V
VANG
V PAR
V SAW
V CENT
V SIZE
GND
H PLS
ABL 1
ABL 2
12V
H CENT
GND
GND
Q507 2SA1037-K
Q505 2SD774
Q506 2SB734
RIBON WIRE WITH DIP PIN
TO H1 BOARD H1-23
L OUT
GND
GND
R OUT
Ð-23 4P
IC251 TDA2050 L
IC261 TDA2050 R
Q251 2SC2412-K
Q261 2SC2412-K
29 INCH ONLY
TO VM BOARD VM-88
Ð-88
H2
NC
H1
RIBON WIRE WITH DIP PIN
TO C BOARD C-81
Ð-81 3P :MICRO
HV
FV
TO C BOARD PICTURE TUBE SOCKET
V901 PICTURE TUBE
KG KB G2
CV KR G1 G4 HV
TO C BOARD C-71 & A BOARD A-15
T802 FBT
PROT 15V
VIDEO
ABL
H CENT
Ð-801A 1P WHT :MINI
Ð-801 3P WHT :MINI
Q801 2SC2412-K
Q598 2SA1037-K
T801 H.D.T
Q805 2SC2688-L
Q804 2SD1941-06
Ð806 ERC06-15S
25/29 INCH ONLY
Ð807 ERC06-15S
Ð-83 2P WHT :MINI
Ð-82 3P WHT :MINI
G2
200V
GND
TO C BOARD C-82
Ð-84 6P WHT :MINI
H+
H+
H-
H-
V-
V+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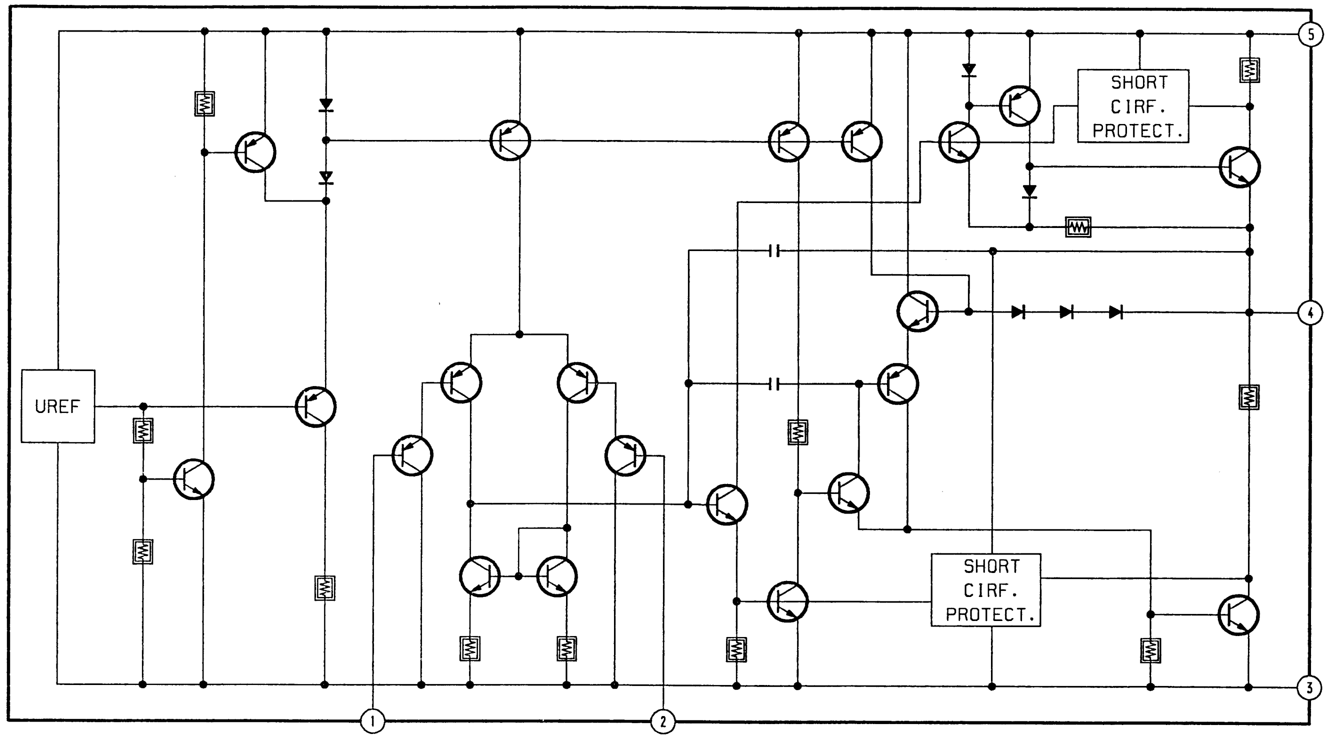
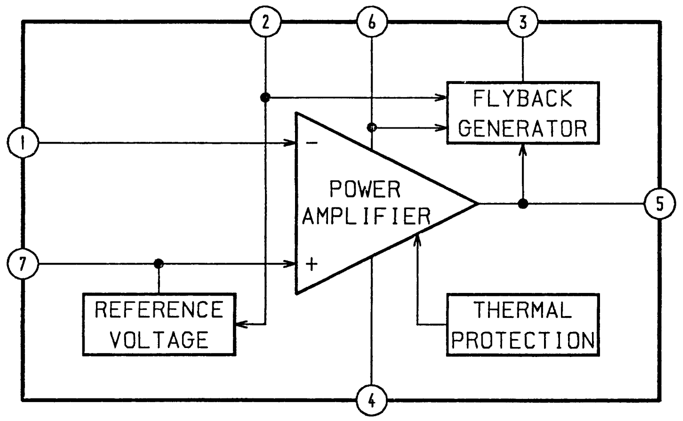
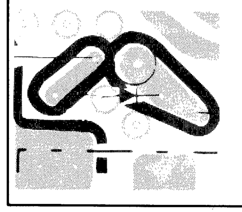
22
TUNING CONTROL
POWER CONTROL
AUDIO OUT
H/V OUT
D
TO J1 BOARD J1-44
TO H2 BOARD H2-2
Đ-18 2P BLK :MICRO
Đ-44 6P WHT :S-MICRO
Đ-2 7P WHT :S-MICRO
IC001 SDA20560-A012
IC002 MC14051BCP
IC003 BA4558
IC005 SDA2546
TO H1 BOARD H1-1
Y/C INIT
AV3 INIT
LC3
LC2
LC1
GND
Đ-1 6P RED :S-MICRO
RIBON WIRE WITH DIP PIN
TO H1 BOARD H1-23
Đ-23 4P
L OUT
GND
GND
R OUT
21/25INCH ONLY
Đ-31 10P GRY :BTOB-P
V IN
GND
Y OUT
7V
V OUT
YC-SWITCH
C OUT
GND
SDA
SCL
TO B1 BOARD B-31
Đ-21 10P GRY :BTOB-P
GND
14V
GND
GND
7V
ST.BY
GND
VIDEO
S-TV
GND
TO V BOARD CNV-1
HUE
ST.BY
MUTE
CHAR
P/ON
SHP INIT
+12V
SCP
+BLK
ABL
TO B1 BOARD B-32
Đ-32 10P GRY :BTOB-P
Đ-45 6P BLK :S-MICRO
TO J1 BOARD J1-44
C1MT
C2MT
C4
L IN
GND
R IN
4-LEVEL
NC
GND
GND
TO A BOARD A-11
Đ-11 10P GRY :BTOB-P
GND
VIDEO IN
GND
AFT
33V
5V
SCL
SDA
GND
12V
TO A BOARD A-12
Đ-12 10P GRY :BTOB-P
Đ-22 10P GRY :BTOB-P
PON
TV
GND
TDA
TCL
GND
R IN
G IN
B IN
BLK
TO V BOARD CNV-2
BLK1
B OUT
G OUT
R OUT
GND
BLK
TEXT B
TEXT G
TEXT R
GND
TO B1 BOARD B-33
Đ-33 10P GRY :BTOB-P
MODE 1
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V TV OUT
Đ-41 18P BLK :HINGE
TO J1 BOARD J1-41
DY
H.DY
H.DY
V.DY
V.DY
Q001 DTC144EK
Q002 DTC144EK
Q003 2SA1037-K
Q004 2SA1037-K
Q005 DTC144EK
Q006 DTC144EK
Q007 2SC2412-K
Q008 2SC2412-K
Q009 2SC2412-K
Q010 2SC2412K
Q271 2SC2412-K
Q598 2SA1037-K
D005 MTZJ5.6B
D007 MTZ3.9B
D009 MTZJ5.6B
D010 MTZJ6.2B
D011 MTZJ6.2B
D012 1SS133
D013 MTZJ6.8C
D003 1SS133
D006 MTZJ33A
D272 1SS133
CF001 12MHz
135V
14V
12V
7V
5V
33V

D BOARD IC251/261 TDA2050


UREF
SHORT
CIRF.
PROTECT.
SHORT
CIRF.
PROTECT.
1
2
3
4
5

D BOARD IC502 TDA8170

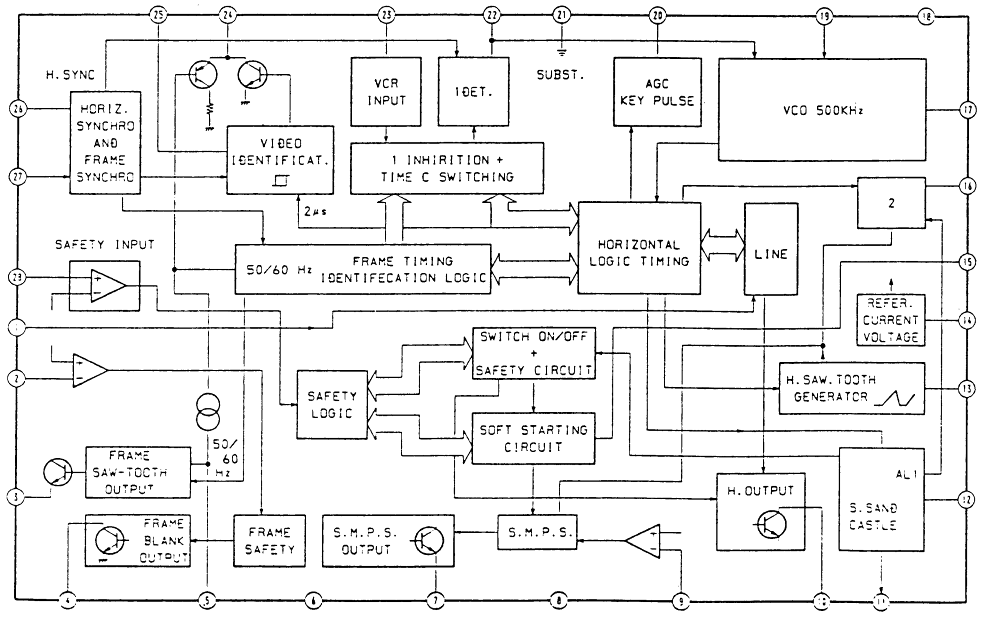

2
6
3
1
7
5
4
FLYBACK GENERATOR
POWER AMPLIFIER
−
+
REFERENCE VOLTAGE
THERMAL PROTECTION



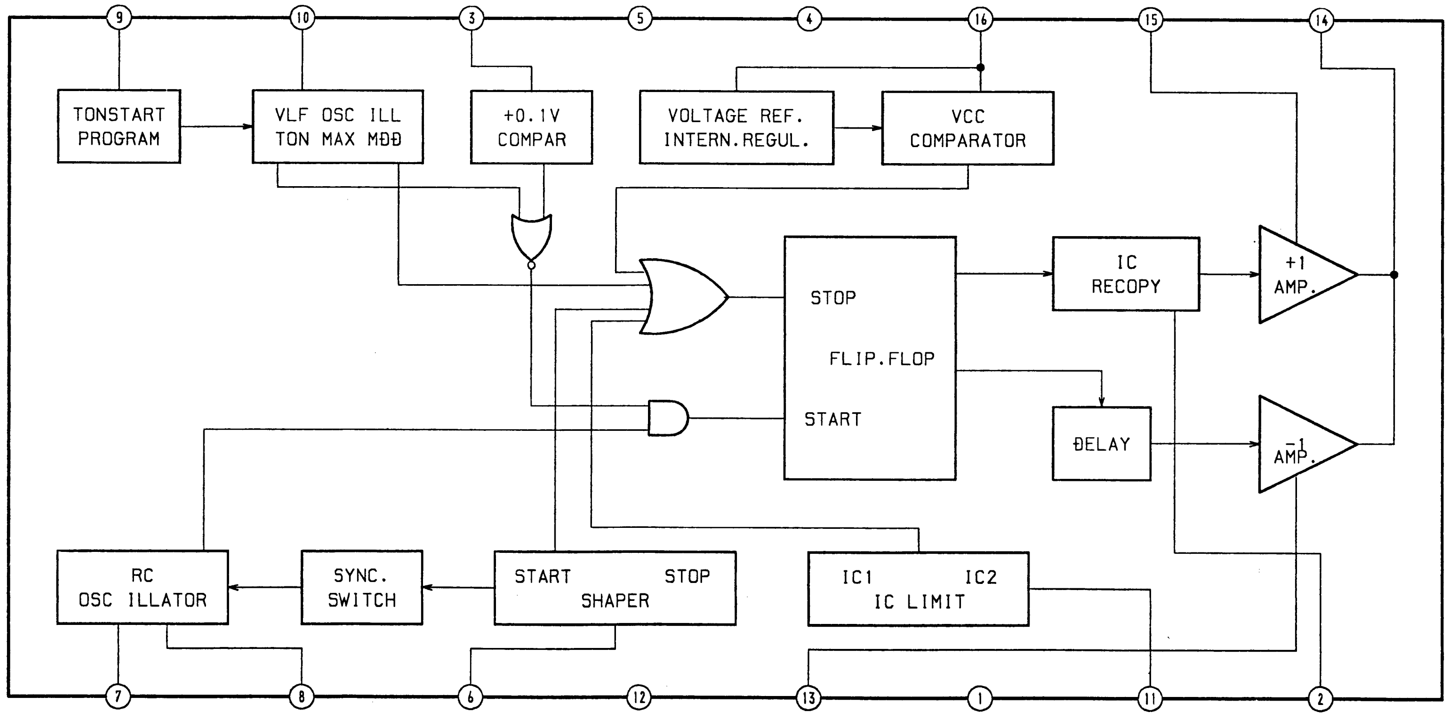
NOTE:

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

D BOARD IC501 TEA2028B

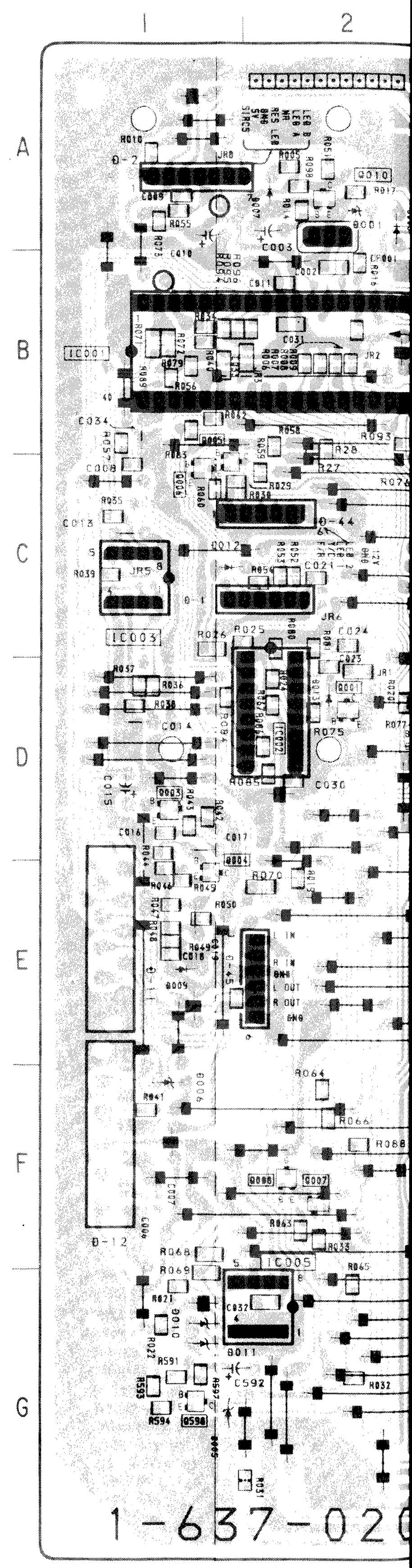

25
24
23
22
21
20
19
18
H. SYNC
HORIZ. SYNCHRO AND FRAME SYNCHRO
VIDEO IDENTIFICAT.
VCR INPUT
1 DET.
SUBST.
AGC KEY PULSE
VCO 500KHz
1 INHIRITION + TIME C SWITCHING
2μs
26
27
17
16
2
SAFETY INPUT
23
50/60 Hz FRAME TIMING IDENTIFECATION LOGIC
HORIZONTAL LOGIC TIMING
LINE
15
REFER. CURRENT VOLTAGE
14
1
2
SWITCH ON/OFF + SAFETY CIRCUIT
SAFETY LOGIC
SOFT STARTING CIRCUIT
H. SAW. TOOTH GENERATOR
13
50/60 Hz
FRAME SAW-TOOTH OUTPUT
3
AL 1
S. SAND CASTLE
H. OUTPUT
12
FRAME BLANK OUTPUT
FRAME SAFETY
S.M.P.S. OUTPUT
S.M.P.S.
4
5
6
7
8
9
10
11

D BOARD IC601 TEA2260


9
10
3
5
4
16
15
14
TONSTART PROGRAM
VLF OSC ILL TON MAX MDD
+0.1V COMPAR
VOLTAGE REF. INTERN. REGUL.
VCC COMPARATOR
STOP
FLIP.FLOP
START
IC RECOPY
+1 AMP.
DELAY
−1 AMP.
RC OSC ILLATOR
SYNC. SWITCH
START STOP SHAPER
IC1 IC2 IC LIMIT
7
8
6
12
13
1
11
2

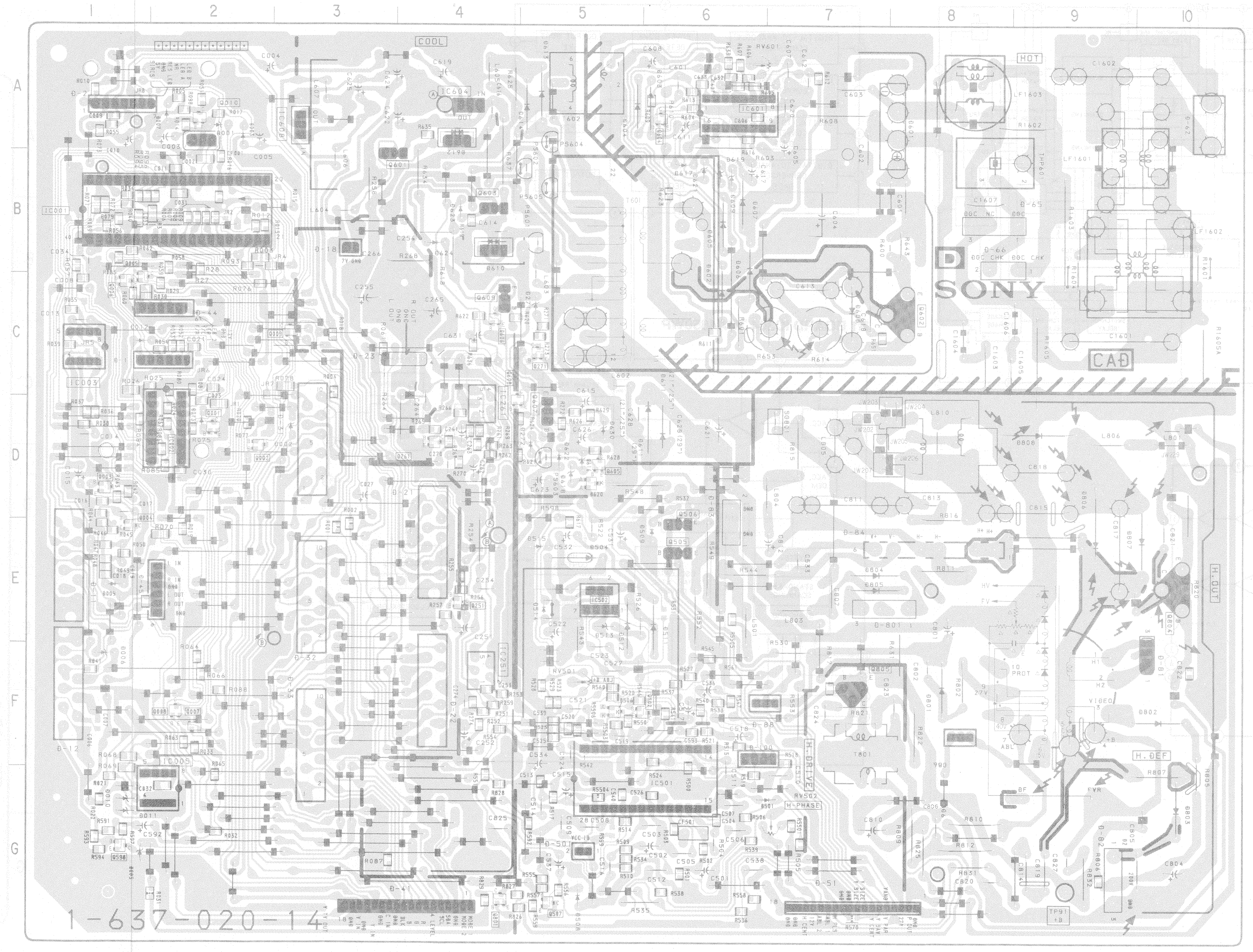
D [TUNING CONTROL, POWER CONTR
AUDIO OUT, H/V OUT

— D Board —


1
2
A
B
C
D
E
F
G
1-637-02

D TUNING CONTROL, POWER CONTROL
AUDIO OUT, H/V OUT

— D Board —



— D Board —

IC	
IC001	B-2
IC002	D-2
IC003	C-1
IC005	G-2
IC251	F-4
IC261	D-4
IC501	G-6
IC502	E-5
IC601	A-6
IC604	A-4
IC608	A-3

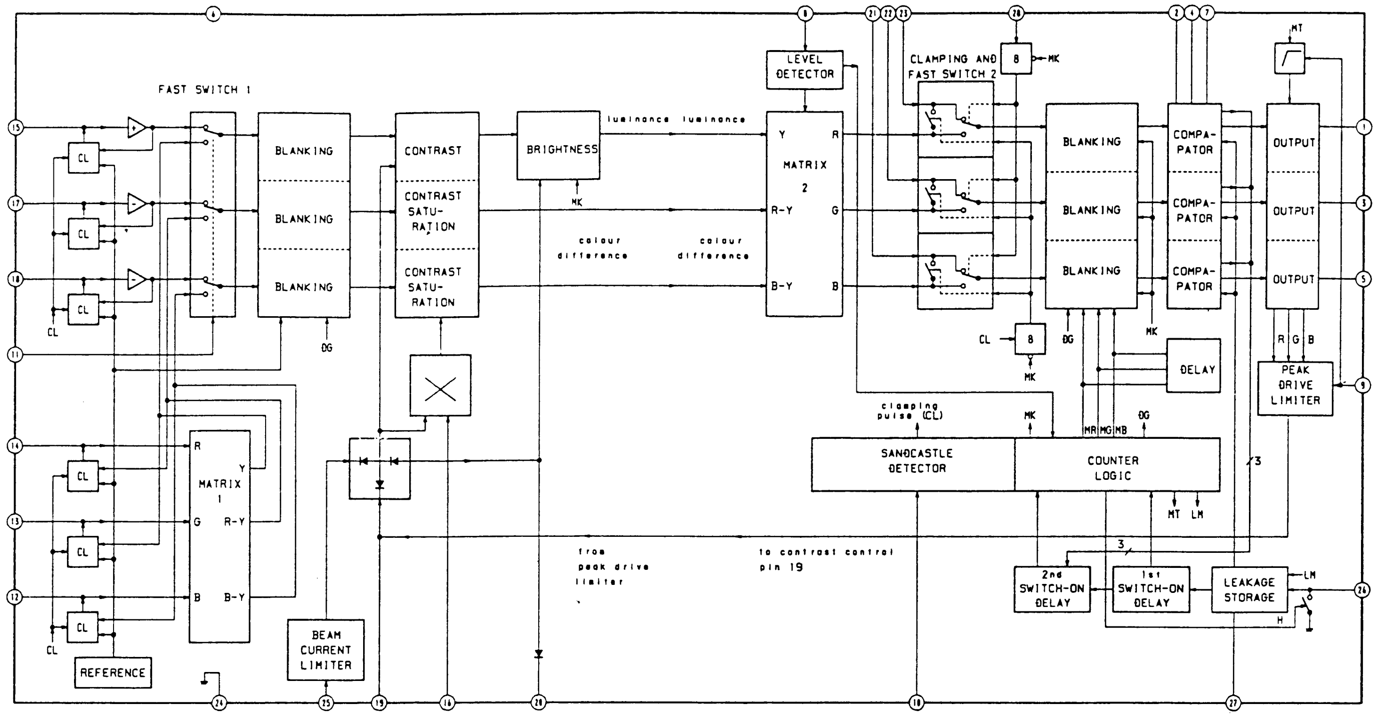
TRANSISTOR	
Q001	D-2
Q002	D-2
Q003	D-1
Q004	E-1
Q005	C-1
Q006	C-1
Q007	F-2
Q008	F-2
Q009	C-3
Q010	A-2
Q251	E-4
Q261	D-4
Q271	C-5
Q502	F-2
Q505	E-6
Q506	D-6
Q507	G-5
Q598	G-1
Q601	B-3
Q602	C-8
Q603	B-4
Q604	A-6
Q605	D-5
Q606	C-4
Q607	D-5
Q608	D-4
Q609	C-4
Q801	G-4
Q804	E-10
Q805	F-7

DIODE	
D001	A-2
D002	D-3
D003	A-2
D005	G-1
D006	F-1
D007	A-2
D009	E-1
D010	G-1
D011	G-1
D012	C-1
D013	D-2
D271	C-5
D272	D-5
D501	G-7
D504	E-5
D506	F-5
D508	G-5
D509	E-6
D511	E-6
D512	E-5
D513	E-5
D514	E-5
D515	E-5
D601	A-8
D602	C-6
D603	A-6
D604	A-5
D605	B-6
D606	B-6
D607	B-6
D608	C-7
D609	B-6
D610	B-4
D611	D-6
D612	A-4
D613	A-5
D614	A-5
D616	D-5
D617	B-6
D618	D-5
D619	B-6
D620	D-5
D621	B-6
D622	D-5
D623	B-4
D624	B-4
D630	D-5
D801	F-8
D802	F-10
D803	G-10
D804	E-7
D805	E-7
D806	E-9
D807	E-10
D808	D-9

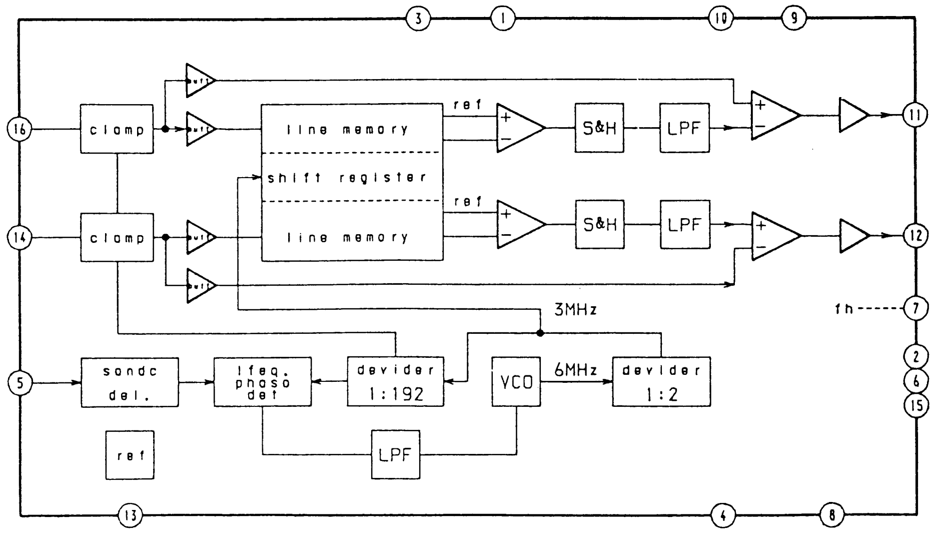
VARIABLE RESISTOR	
RV501	F-5
RV502	G-7
RV601	A-6

TP	
TP91	G-9

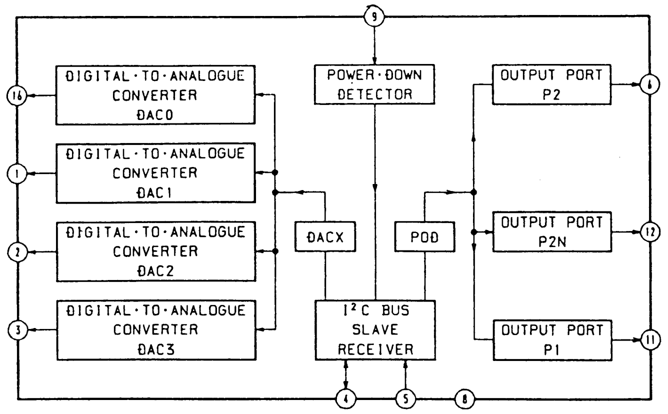
B1 BOARD IC301 TDA4580-V7


FAST SWITCH 1
CL
BLANKING
BLANKING
BLANKING
CONTRAST
CONTRAST SATU-RATION
CONTRAST SATU-RATION
BRIGHTNESS
MK
luminance
luminance
colour difference
colour difference
MATRIX 1
R
G
B
Y
R-Y
B-Y
REFERENCE
BEAM CURRENT LIMITER
DG
from peak drive limiter
to contrast control pin 19
LEVEL DETECTOR
MATRIX 2
CLAMPING AND FAST SWITCH 2
8
MK
CL
BLANKING
COMPA-PATOR
OUTPUT
MT
R G B
PEAK DRIVE LIMITER
DELAY
clamping pulse (CL)
MR MG MB
SANDCASTLE DETECTOR
COUNTER LOGIC
MT LM
3
2nd SWITCH-ON DELAY
1st SWITCH-ON DELAY
LEAKAGE STORAGE
LM
H
15
17
18
11
14
13
12
24
25
19
16
20
10
27
26
9
1
3
5
6
21
22
23
28
2
4
7

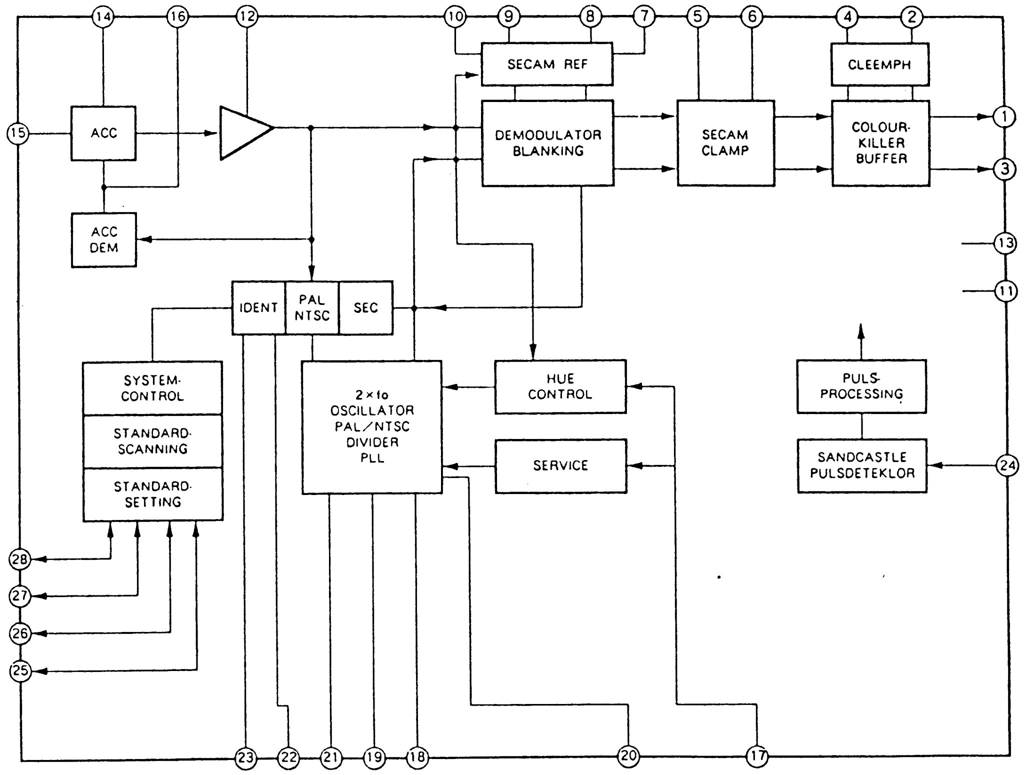
B1 BOARD IC303 TDA4660T


3
1
10
9
16
clamp
line memory
shift register
line memory
ref
ref
+
−
S&H
LPF
11
14
clamp
12
3MHz
fh
7
2
6
15
5
sondc del.
lfeq. phase det
devider 1:192
VCO
6MHz
devider 1:2
ref
LPF
13
4
8

B1 BOARD IC302 TDA8442-N3


9
14
1
2
3
DIGITAL-TO-ANALOGUE CONVERTER DAC0
DIGITAL-TO-ANALOGUE CONVERTER DAC1
DIGITAL-TO-ANALOGUE CONVERTER DAC2
DIGITAL-TO-ANALOGUE CONVERTER DAC3
POWER-DOWN DETECTOR
DACX
POD
I²C BUS SLAVE RECEIVER
OUTPUT PORT P2
OUTPUT PORT P2N
OUTPUT PORT P1
6
12
11
4
5
8

B1 BOARD IC304 TDA4650WP

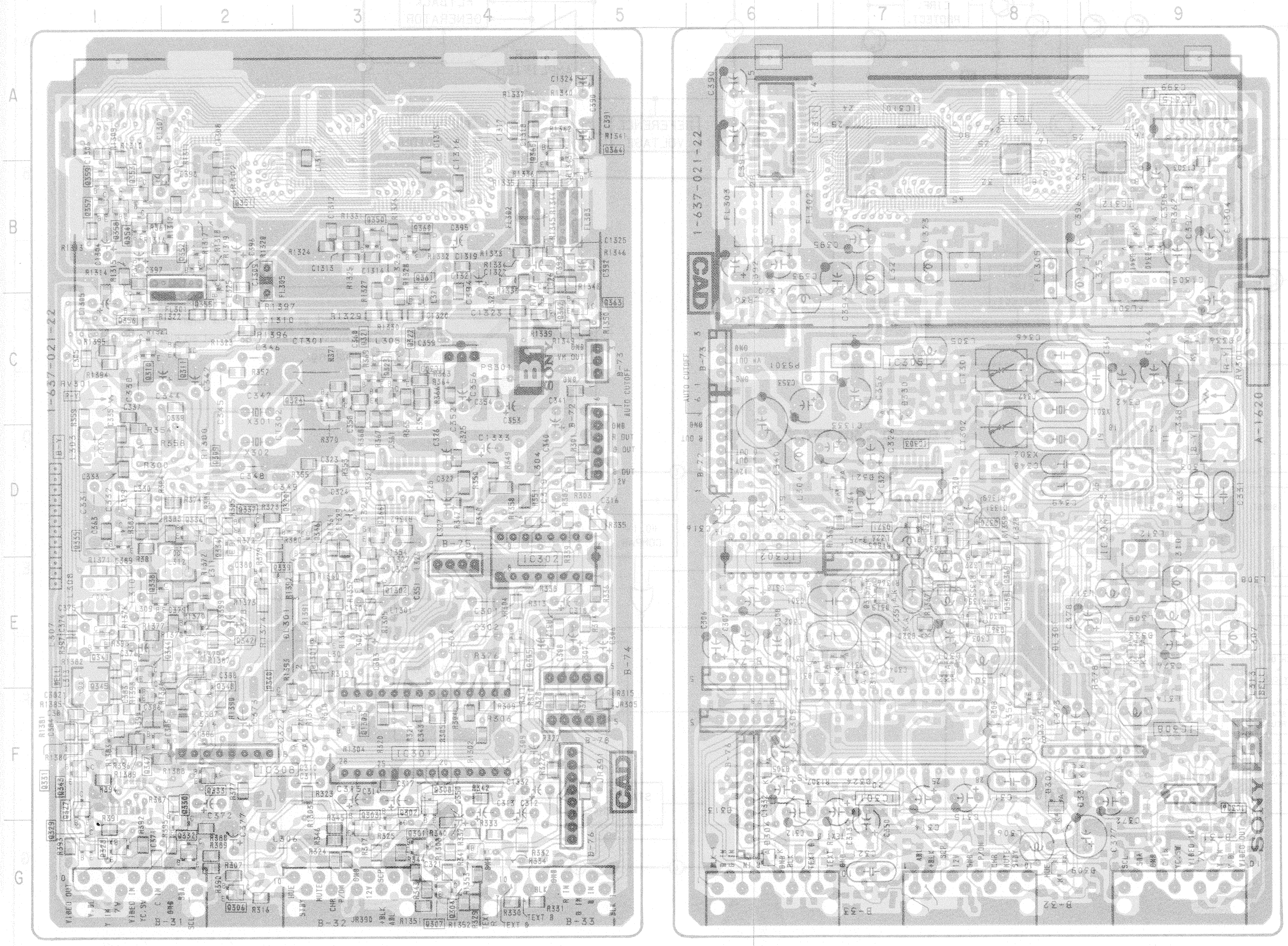

14
16
12
10
9
8
7
5
6
4
2
15
ACC
ACC DEM
SECAM REF
DEMODULATOR BLANKING
SECAM CLAMP
CLEEMPH
COLOUR-KILLER BUFFER
1
3
13
11
IDENT
PAL NTSC
SEC
SYSTEM-CONTROL
STANDARD-SCANNING
STANDARD-SETTING
2×fo OSCILLATOR PAL/NTSC DIVIDER PLL
HUE CONTROL
SERVICE
PULS-PROCESSING
SANDCASTLE PULSDETEKLOR
24
28
27
26
25
23
22
21
19
18
20
17

A
B
C
D
E
F
G

B1 VIDEO PROCESSOR, COLOR PROCESSOR
Y/C SW, D/A CONVERTER, MEMORY
A/D CONVERTER

— B1 Board —

- ▨ : pattern from the side which enables seeing.
- ▨ : pattern of the rear side.



— B1 Board —

IC	
IC301	E – 6
IC302	D – 5
IC303	C – 6
IC304	C – 7
IC305	B – 6
IC306	E – 8
IC308	E – 7
IC310	A – 6
IC311	A – 5
IC312	A – 7
IC313	A – 6
IC315	A – 7

TRANSISTOR	
Q301	E – 3
Q302	E – 3
Q303	E – 3
Q304	F – 3
Q305	D – 4
Q306	F – 2
Q307	F – 3
Q308	E – 3
Q310	C – 1
Q311	C – 1
Q320	C – 2
Q321	B – 2
Q322	B – 3
Q323	C – 3
Q324	C – 2
Q327	E – 1
Q328	E – 1
Q329	E – 1
Q330	E – 1
Q331	E – 1
Q332	E – 1
Q333	E – 2
Q334	D – 2
Q335	D – 1
Q336	C – 1
Q337	C – 2
Q338	D – 1
Q339	D – 2
Q340	D – 2
Q341	D – 1
Q342	D – 2
Q343	E – 1
Q344	D – 1
Q345	D – 1
Q346	D – 2
Q347	E – 1
Q348	D – 2
Q350	B – 3
Q352	B – 1
Q353	A – 1
Q354	B – 1
Q355	B – 2
Q356	C – 1
Q357	B – 1
Q358	B – 1
Q359	B – 1
Q360	B – 3
Q361	B – 3
Q362	B – 4
Q363	B – 4
Q364	A – 4
Q365	A – 4
Q366	C – 3
Q367	D – 6
Q368	D – 6
Q369	D – 6
Q370	D – 6
Q371	D – 6
Q372	D – 6
Q373	E – 6
Q1301	D – 2
Q1302	D – 3
Q1303	E – 2

DIODE	
D301	D – 6
D304	E – 5
D305	E – 5
D307	E – 7
D308	E – 6
D309	F – 7
D310	D – 5
D311	D – 5
D312	D – 5
D314	D – 6
D318	D – 6
D319	D – 6
D320	D – 6
D321	C – 6
D322	E – 2
D330	C – 6
D331	E – 7
D333	D – 7
D336	B – 8
D340	B – 7
D341	B – 7

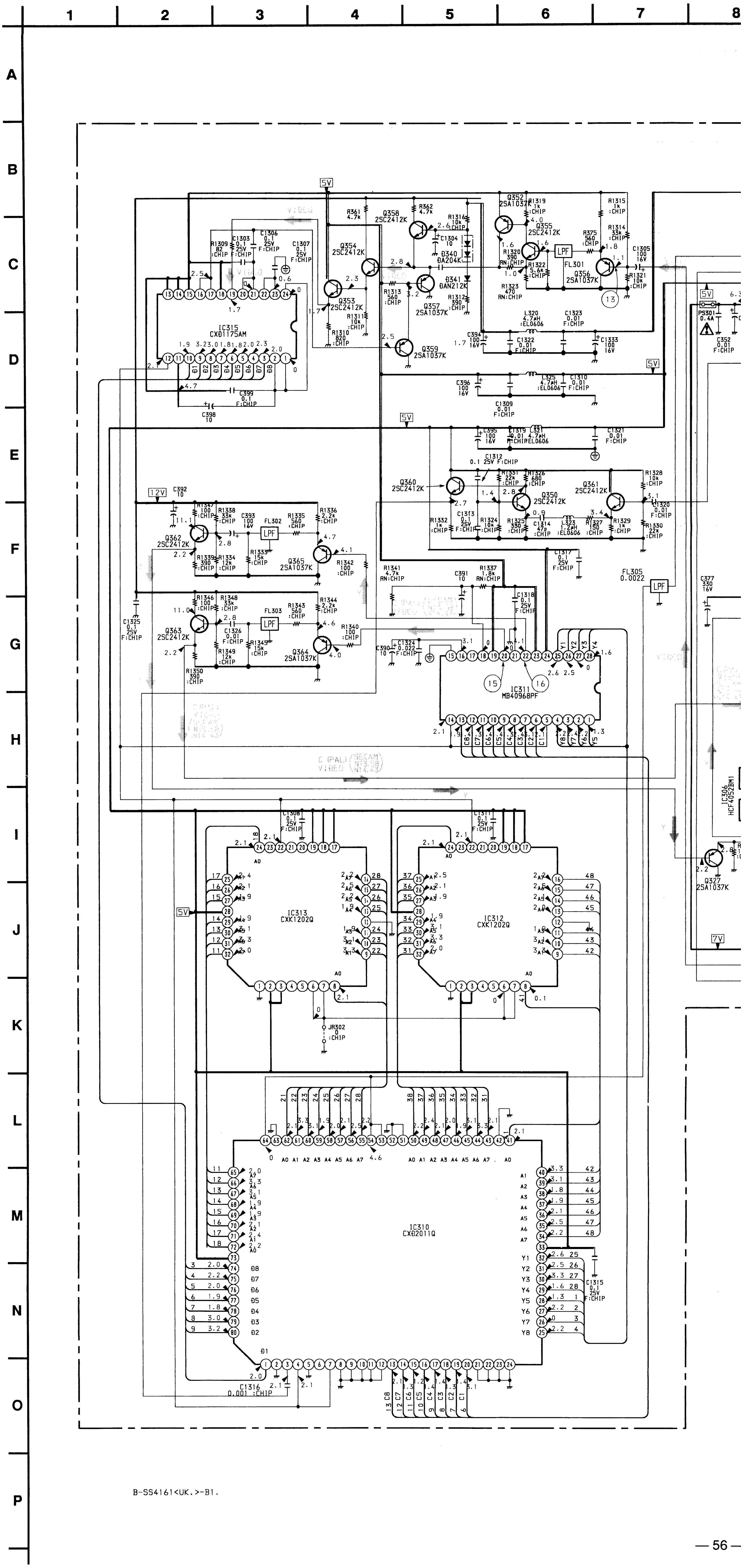
VARIABLE RESISTOR	
RV301	C – 8

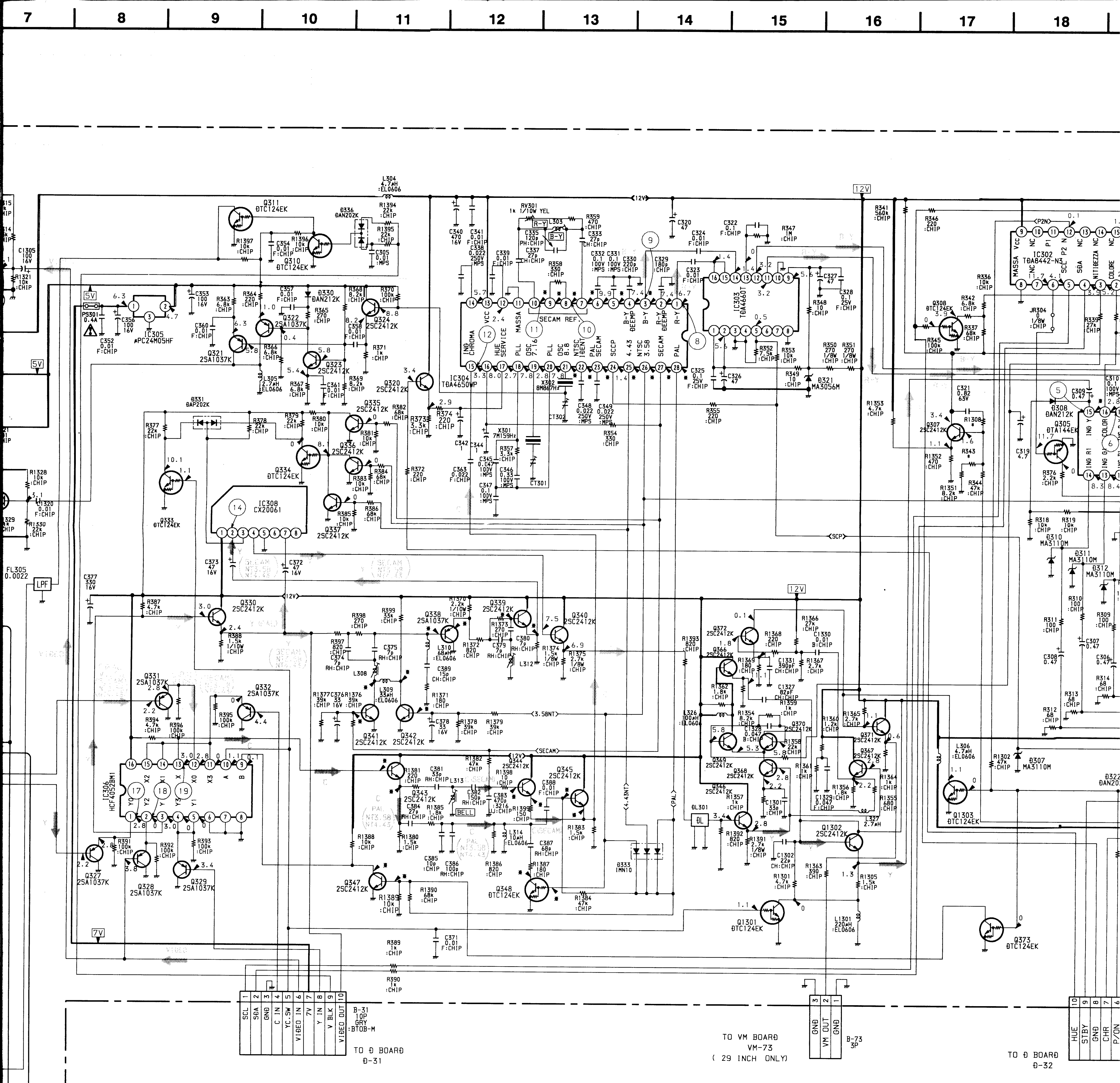
TRIMMER	
CT301	C – 6
CT302	C – 6

COIL	
L303	C – 8
L308	D – 8
L312	D – 7
L313	D – 8

— B1 Board —

IC301	TDA4580-V7	VIDEO PROCESSOR
IC302	TDA8442N3	D/A CONVERTER
IC303	TDA4660T	1H DELAY
IC304	TDA4650WP	COLOR PROCESSOR
IC305	μPC24M05HF	REGULATOR
IC306	HCF4052BM	Y/C SW
IC308	CX20061	Y SW
IC310	CXD20110-TL	COMB CONTROL
IC311	MB40968PF	D/A CONVERTER
IC312	CXK1202Q-T4	MEMORY
IC313	CXK1202Q-T4	MEMORY
IC315	CXD1175AM-T5	A/D CONVERTER
Q301	2SC2412K	CANAL +BLK
Q302	2SC2412K	ON SCREEN DISPLAY SW
Q303	2SC2412K	FAS PICTURE MUTE SW
Q304	2SC2412K	ON SCREEN DISPLAY SW
Q305	DTA144EK	ANTI PRIORITY SCART
Q306	2SC2412K	STBY SW
Q307	2SC2412K	ABL
Q308	DTC124EK	MUTE
Q310	DTC124EK	SECAM SW
Q311	DTC124EK	SECAM SW
Q320	2SC2412K	HUE BUFFER
Q321	2SA1037K	CLK AMP3
Q322	2SA1037K	CLK AMP2
Q323	2SC2412K	CLK AMP1
Q324	2SC2412K	CLK BUFFER
Q327	2SA1037K	Y OUT
Q328	2SA1037K	VIDEO IN
Q329	2SA1037K	Y IN
Q330	2SC2412K	VIDEO BUFFER
Q331	2SA1037K	C OUT
Q332	2SA1037K	C IN
Q333	DTC124EK	Y/C SW
Q334	DTC124EK	Y SW
Q335	2SC2412K	SECAM SW
Q336	2SC2412K	NTSC (3.58) SW
Q337	2SC2412K	NTSC (4.43) SW
Q338	2SA1037K	Y BUFFER
Q339	2SC2412K	Y BUFFER
Q340	2SC2412K	Y BUFFER
Q341	2SC2412K	SECAM TRAP SW
Q342	2SC2412K	NTSC TRAP SW
Q343	2SC2412K	C OUT
Q344	2SC2412K	SECAM SW
Q345	2SC2412K	PAL/SECAM SW
Q346	2SC2412K	Y IN
Q347	2SC2412K	PAL SW
Q348	DTC124EK	NTSC (3.58) SW
Q350	2SC2412K	CLK AMP
Q352	2SA1037K	VIDEO AMP
Q353	2SC2412K	BUFFER
Q354	2SC2412K	BUFFER
Q355	2SC2412K	VIDEO AMP
Q356	2SA1037K	VIDEO BUFFER
Q357	2SA1037K	CLAMP BIAS
Q358	2SC2412K	VIDEO CLAMP
Q359	2SA1037K	CLAMP BIAS
Q360	2SC2412K	CLK BUFFER
Q361	2SC2412K	CLK AMP
Q362	2SC2412K	Y BUFFER
Q363	2SC2412K	C BUFFER
Q364	2SA1037K	C BUFFER
Q365	2SA1037K	Y BUFFER
Q366	2SC2412K	SHP BUFFER
Q367	2SC2412K	Y BUFFER
Q368	2SC2412K	SHP AMP
Q369	2SC2412K	SHP AMP
Q370	2SC2412K	SHP AMP
Q371	2SC2412K	VM BUFFER
Q372	2SC2412K	VM AMP
Q373	DTC124EK	
Q1301	DTC124EK	Y BUFFER
Q1302	2SC2412K	Y BUFFER
Q1303	DTC124EK	VM MUTE
D301	1MN10	ACO AT ATBY
D304	DAN212K	PROTECT
D305	DAN212K	PROTECT
D307	MA3110M	PROTECT
D308	DAN212K	PROTECT
D309	DAN212K	PROTECT
D310	MA3110M	PROTECT
D311	MA3110M	PROTECT
D312	MA3110M	PROTECT
D314	DA204K	PROTECT
D318	DA204K	PROTECT
D319	DA204K	PROTECT
D320	DA204K	PROTECT
D321	MA3056	REG
D322	DAN202K	PROTECT
D330	DAN212K	BIAS
D331	DAP202K	Y/C SW
D333	1MN10	SYSTEM SW
D336	DAN202K	CORRECT SW
D340	DA204K	VIDEO AMP
D341	DAN212K	VIDEO AMP

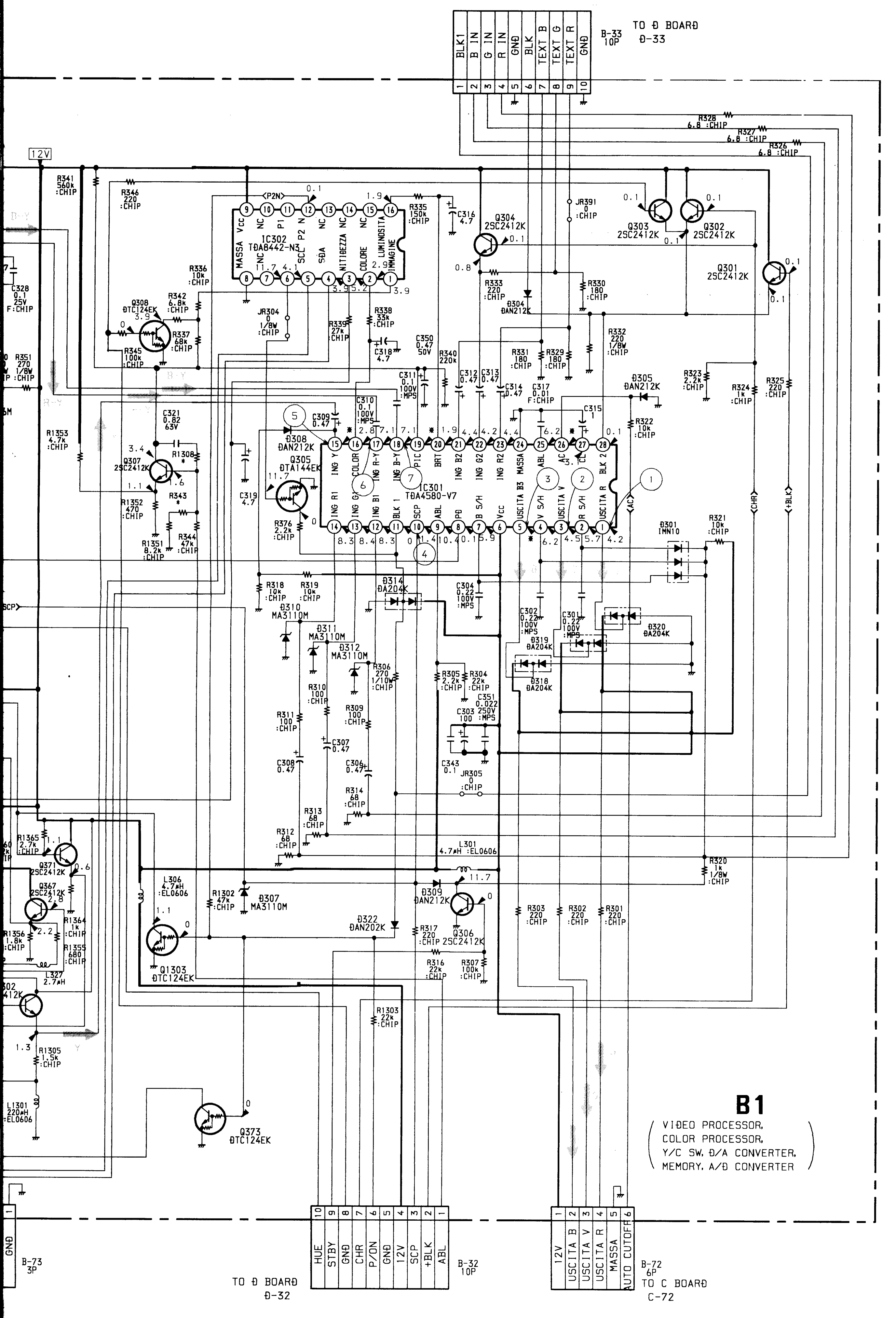

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
5V
12V
7V
IC315
CXD1175AM
IC311
MB40968PF
IC313
CXK1202Q
IC312
CXK1202Q
IC310
CXD2011Q
IC306
HCF4052BM
Q352
2SA1037K
Q355
2SC2412K
Q356
2SA1037K
Q358
2SC2412K
Q354
2SC2412K
Q353
2SC2412K
Q357
2SA1037K
Q359
2SA1037K
Q360
2SC2412K
Q350
2SC2412K
Q361
2SC2412K
Q362
2SC2412K
Q365
2SA1037K
Q363
2SC2412K
Q364
2SA1037K
Q327
2SA1037K
D340
DA204K
D341
DAN212K
FL301
FL302
FL303
FL305
0.0022
LPF
PS301
0.4A
JR302
0
:CHIP
C1316
0.001 :CHIP
C1315
0.1
25V
F:CHIP
VIDEO
C (PAL)
VIDEO
Y
B-SS4161<UK.>-B1.


7
8
9
10
11
12
13
14
15
16
17
18
IC304
TDA4650WP
IC303
TDA4660T
IC302
TDA8442-N3
IC305
μPC24M05HF
IC306
HCF4052BM1
IC308
CX20061
L304
4.7μH
:EL0606
12V
5V
7V
LPF
SECAM REF.
BELL
DL
TO D BOARD
D-31
B-31
10P
GRY
BTOB-M
SCL
SDA
GND
C IN
YC.SW
VIDEO IN
7V
Y IN
V BLK
VIDEO OUT
TO VM BOARD
VM-73
(29 INCH ONLY)
GND
VM OUT
GND
B-73
3P
TO D BOARD
D-32
HUE
STBY
GND
CHR
P/ON
X301
7M159Hz
X302
8M867Hz
RV301
1k 1/10W YEL

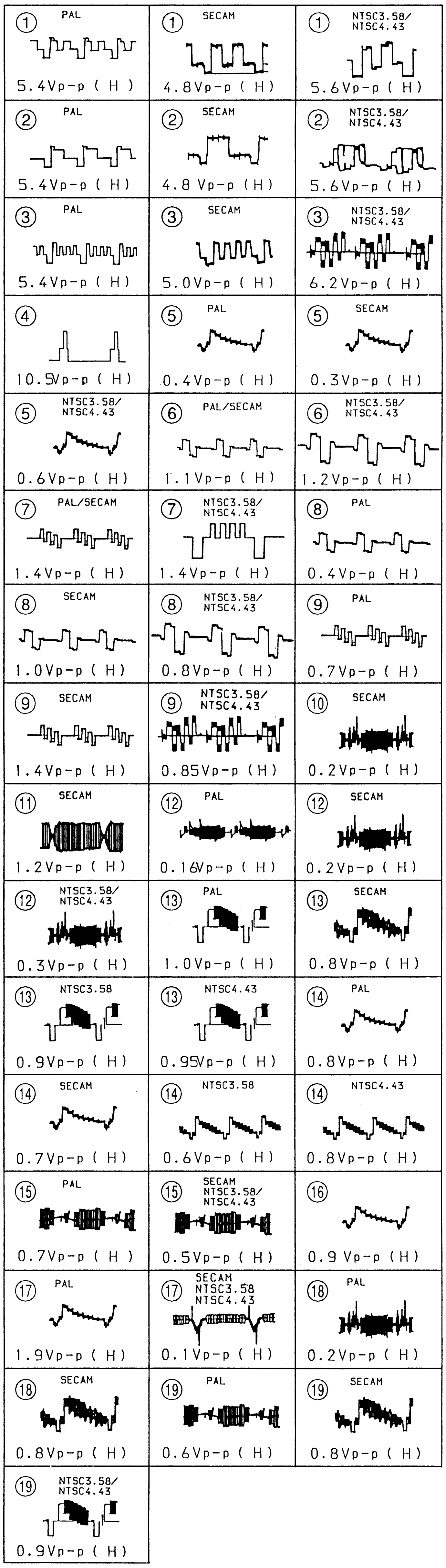
— B1 Board —

As to the voltage
make ※ on the Sche
the another list.

IC·NO	PIN·NO	PAL	SECAM	NT 3.
IC301	⑤	5.1	4.8	
	⑮	7.3	7.0	
	⑲	3.1	3.4	
	㉖	6.6	6.6	
IC304	③	6.8	6.8	
	⑤	9.9	10.1	
	⑦	4.3	3.5	
	⑧	3.4	3.0	
	⑨	3.4	3.0	
	⑩	4.3	3.4	
	㉑	2.3	3.1	
	㉒	5.6	5.6	
	㉓	7.5	7.5	
	㉕	0	1.4	
	㉖	0	0	
	㉗	0	5.9	
	㉘	5.9	0	


BLK1
B IN
G IN
R IN
GND
BLK
TEXT B
TEXT G
TEXT R
GND
B-33
10P
TO D BOARD
D-33
12V
IC302
TDA8442-N3
MASSA
Vcc
NC
P1
P2
SCL
SDA
NITIDEZZA
COLORE
LUMINOSITA
IMMAGINE
IC301
TDA4580-V7
Q301
2SC2412K
Q302
2SC2412K
Q303
2SC2412K
Q304
2SC2412K
Q305
DTA144EK
Q306
2SC2412K
Q307
2SC2412K
Q308
DTC124EK
Q1303
DTC124EK
Q373
DTC124EK
D301
IMN10
D304
DAN212K
D305
DAN212K
D307
MA3110M
D308
DAN212K
D309
DAN212K
D310
MA3110M
D311
MA3110M
D312
MA3110M
D314
DA204K
D318
DA204K
D319
DA204K
D320
DA204K
D322
DAN202K
L301
4.7μH
:EL0606
L306
4.7μH
:EL0606
L1301
220μH
:EL0606
B1
VIDEO PROCESSOR,
COLOR PROCESSOR,
Y/C SW, D/A CONVERTER,
MEMORY, A/D CONVERTER
HUE
STBY
GND
CHR
P/ON
GND
12V
SCP
+BLK
ABL
B-32
10P
TO D BOARD
D-32
12V
USCITA B
USCITA V
USCITA R
MASSA
AUTO CUTOFF
B-72
6P
TO C BOARD
C-72
GND
B-73
3P

— B1 Board —



— B1 Board —

As to the voltage value shown by the make ※ on the Schematic Diagram, see the another list.

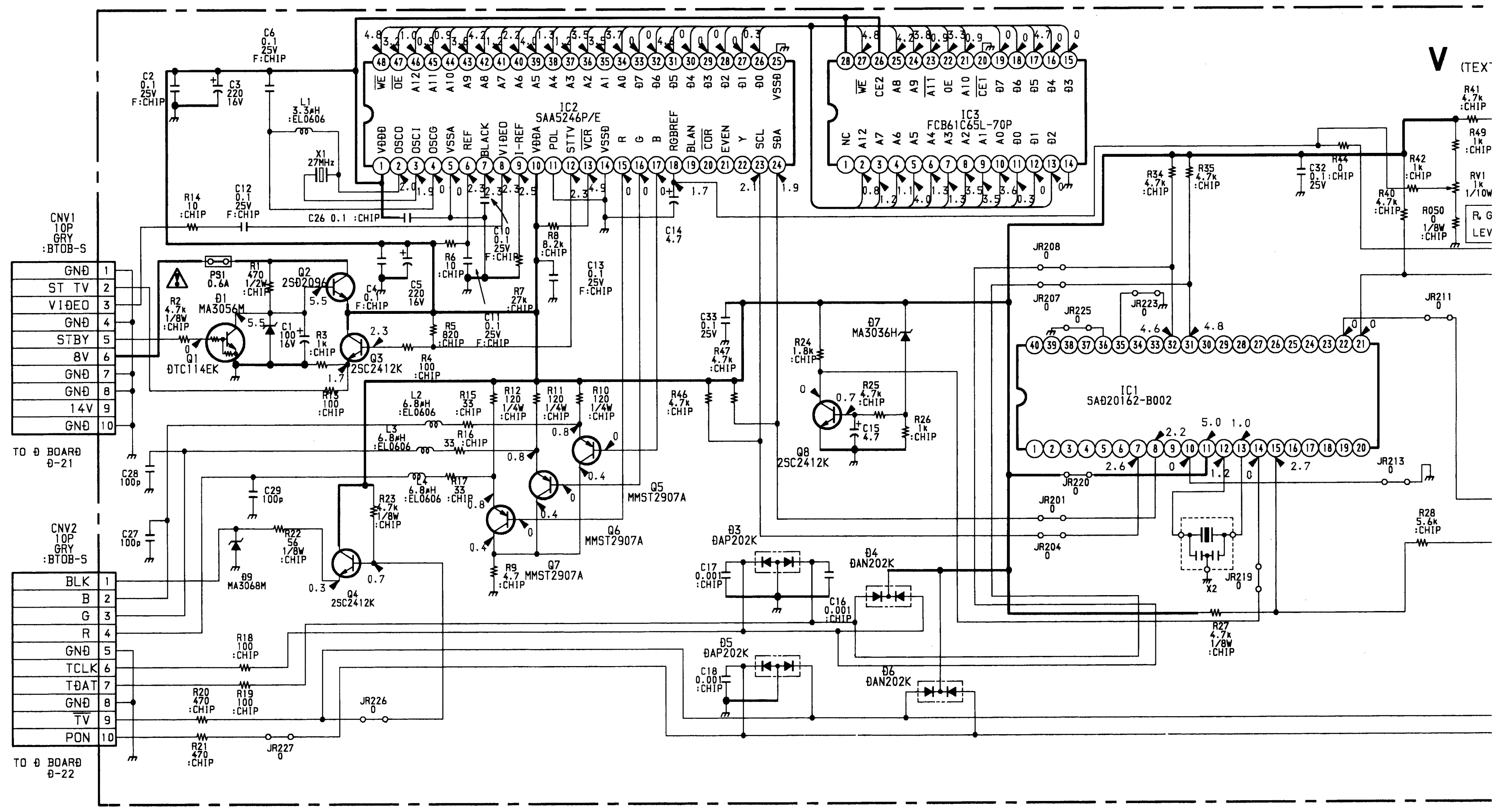
IC·NO	PIN·NO	PAL	SECAM	NTSC 3.38	NTSC 4.43
IC301	⑤	5.1	4.8	4.8	4.8
	⑮	7.3	7.0	7.0	7.0
	⑲	3.1	3.4	3.8	3.4
	㉖	6.6	6.6	6.0	6.3
IC304	③	6.8	6.8	6.9	6.8
	⑤	9.9	10.1	9.9	9.9
	⑦	4.3	3.5	4.6	4.6
	⑧	3.4	3.0	3.4	3.4
	⑨	3.4	3.0	3.4	3.4
	⑩	4.3	3.4	4.6	4.6
	㉑	2.3	3.1	3.1	2.3
	㉒	5.6	5.6	5.6	7.4
	㉓	7.5	7.5	5.7	5.7
	㉕	0	1.4	5.9	5.9
	㉖	0	0	0	0
	㉗	0	5.9	0	0
	㉘	5.9	0	0	0

Q·NO		PAL	SECAM	NTSC 3.38	NTSC 4.43
Q338	B	2.6	3.9	3.9	3.9
	E	3.3	4.6	4.6	4.6
Q339	B	3.2	4.6	4.6	4.6
	E	3.6	3.9	3.9	3.9
Q341	B	0	0.6	0.4	0.1
	C	11.8	0	11.6	11.6
Q342	B	0	0	0.4	0
	C	11.7	0	11.7	11.7
Q343	B	3.2	5.3	5.3	5.3
	E	2.6	4.6	4.7	4.7
Q344	B	0	5.4	1.0	0.1
	E	4.0	4.8	1.5	4.5
Q345	B	4.6	0.1	1.9	5.0
	E	4.0	4.4	1.4	4.4
Q347	B	0.6	0	0	0
	C	0.1	11.9	11.9	11.9
Q348	B	0.1	0.1	1.0	0.1
	C	0.4	0.2	0.2	0.4

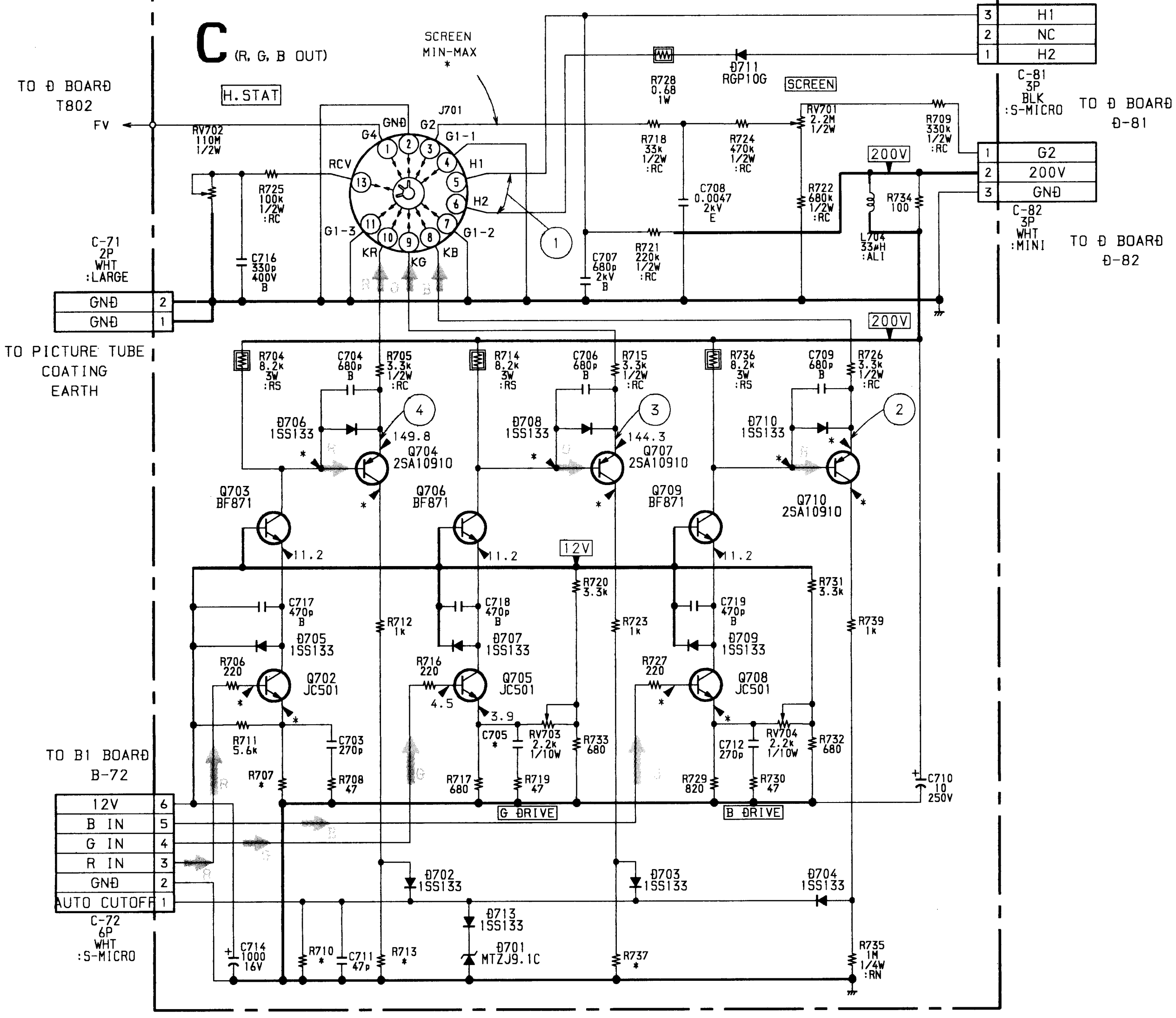
— B1 BOARD * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
B-73	OPEN	OPEN	3P
R343	220 1/10W	270 1/10W	1.2K 1/10W
R1308	0 1/10W	0 1/10W	4.7K 1/10W

— V Board —

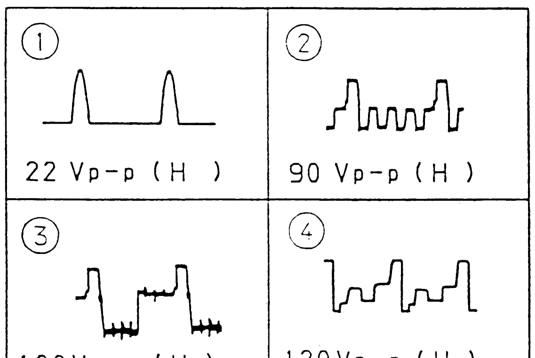

CNV1
10P
GRY
:BTOB-S
GND 1
ST TV 2
VIDEO 3
GND 4
STBY 5
8V 6
GND 7
GND 8
14V 9
GND 10
TO D BOARD
D-21
CNV2
10P
GRY
:BTOB-S
BLK 1
B 2
G 3
R 4
GND 5
TCLK 6
TDAT 7
GND 8
TV 9
PON 10
TO D BOARD
D-22
IC2
SAA5246P/E
IC3
FCB61C65L-70P
IC1
SAD20162-B002
X1
27MHz
X2
Q1
DTC114EK
Q2
2SD2096
Q3
2SC2412K
Q4
2SC2412K
Q5
MMST2907A
Q6
MMST2907A
Q7
MMST2907A
Q8
2SC2412K
D1
MA3056M
D3
DAP202K
D4
DAN202K
D5
DAP202K
D6
DAN202K
D7
MA3036H
D9
MA3068M
PS1
0.6A
V
(TEXT

— C Board —


C (R, G, B OUT)
H.STAT
SCREEN
MIN-MAX
J701
TO D BOARD
T802
FV
C-71
2P
WHT
:LARGE
GND 2
GND 1
TO PICTURE TUBE
COATING
EARTH
3 H1
2 NC
1 H2
C-81
3P
BLK
:S-MICRO
TO D BOARD
D-81
1 G2
2 200V
3 GND
C-82
3P
WHT
:MINI
TO D BOARD
D-82
200V
12V
G DRIVE
B DRIVE
TO B1 BOARD
B-72
12V 6
B IN 5
G IN 4
R IN 3
GND 2
AUTO CUTOFF 1
C-72
6P
WHT
:S-MICRO
Q702
JC501
Q703
BF871
Q704
2SA10910
Q705
JC501
Q706
BF871
Q707
2SA10910
Q708
JC501
Q709
BF871
Q710
2SA10910
D711
RGP10G
D701
MTZJ9.1C
①
②
③
④

B-¥SS4161<UK.>-C.. ,P1

— C Board —


①
22 Vp-p (H)
②
90 Vp-p (H)
③
100Vp-p (H)
④
120Vp-p (H)

— C Board —

As to the voltage value shown by the make ✳ on the Schematic Diagram, see the another list.

		KV-A2121D	KV-A2521D	KV-A2921D
Q702	B	3.8	4.2	
	E	3.2	3.6	
Q703	C	153.8	145.8	
Q704	B	153.8	145.8	
	C	4.7	5.3	
	E	149.8	138.9	
Q706	C	149.0	145.5	
Q707	B	149.0	145.5	
	C	4.9	6.0	
	E	144.3	141.6	
Q708	B	5.1	4.7	
	E	4.5	4.1	
Q709	C	151.0	131.5	
Q710	B	151.0	131.5	
	C	6.7	7.2	
	E	145.8	126.9	
SCREEN	MIN	170.9	201	
	MAX	907	926	

— V Board —

B-SS4172<

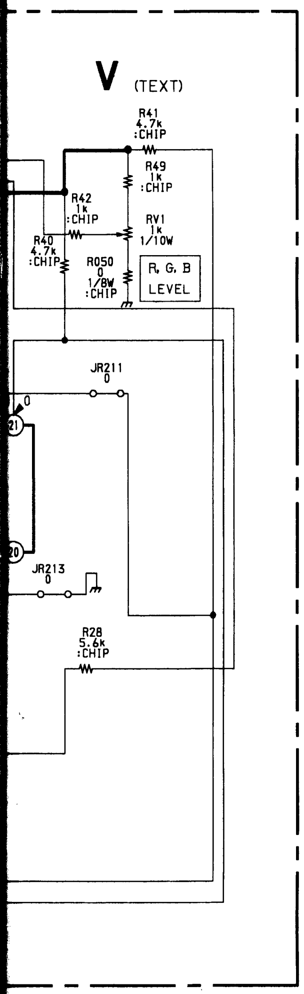
IC1	MAB8461P-W208	MICRO-CONT
IC2	SAA5246E	IVT
IC3	FCB61C65L-70P	STATIC-RAM
Q1	DTC114EK	STAND BY
Q2	2SD2096	5V REG
Q3	2SC2412K	SYNC BUFFER
Q4	2SC2412K	BLK OUT
Q5	MMST2907A	B OUT
Q6	MMST2907A	G OUT
Q7	MMST2907A	R OUT
Q8	2SC2412K	P ON SW
D1	MA3056M	5V REG
D3	DAP202K	PROTECT
D4	DAN202K	PROTECT
D5	DAP202K	PROTECT
D6	DAN202K	PROTECT
D7	MA3036H	PROTECT
D9	MA3068M	PROTECT

— C Board —

Q702	JC501	R DRIVE
Q703	BF871	R OUT
Q704	2SA10910	ACO MEASURING
Q705	JC501	G DRIVE
Q706	BF871	G OUT
Q707	2SA10910	ACO MEASURING
Q708	JC501	B DRIVE
Q709	BF871	B OUT
Q710	2SA10910	ACO MEASURING
D701	MTZJ9.1C	PROTECT
D702	1SS133	PROTECT
D703	1SS133	PROTECT
D704	1SS133	PROTECT
D705	1SS133	PROTECT
D706	1SS133	PROTECT
D707	1SS133	PROTECT
D708	1SS133	PROTECT
D709	1SS133	PROTECT
D710	1SS133	PROTECT
D711	RGP10G	HEATING VOLTAGE REC
D713	1SS133	PROTECT

— C BOARD ✱ MARK —

	KV-A2121D	KV-A2521D
C705	180P	220P
R707	430	390
R710	100K 1/4W 1%	68K 1/4W 1%
R713	160K 1/4W 1%	120K 1/4W 1%
R737	390K 1/4W 1%	820K 1/4W 1%


V (TEXT)
R41 4.7k :CHIP
R49 1k :CHIP
R42 1k :CHIP
RV1 1k 1/10W
R40 4.7k :CHIP
R050 0 1/8W :CHIP
R, G, B LEVEL
JR211 0
JR213 0
R28 5.6k :CHIP

B-SS4172<AEP>-V..

CONT
RAM
BY
UFFER
T
W
T
T
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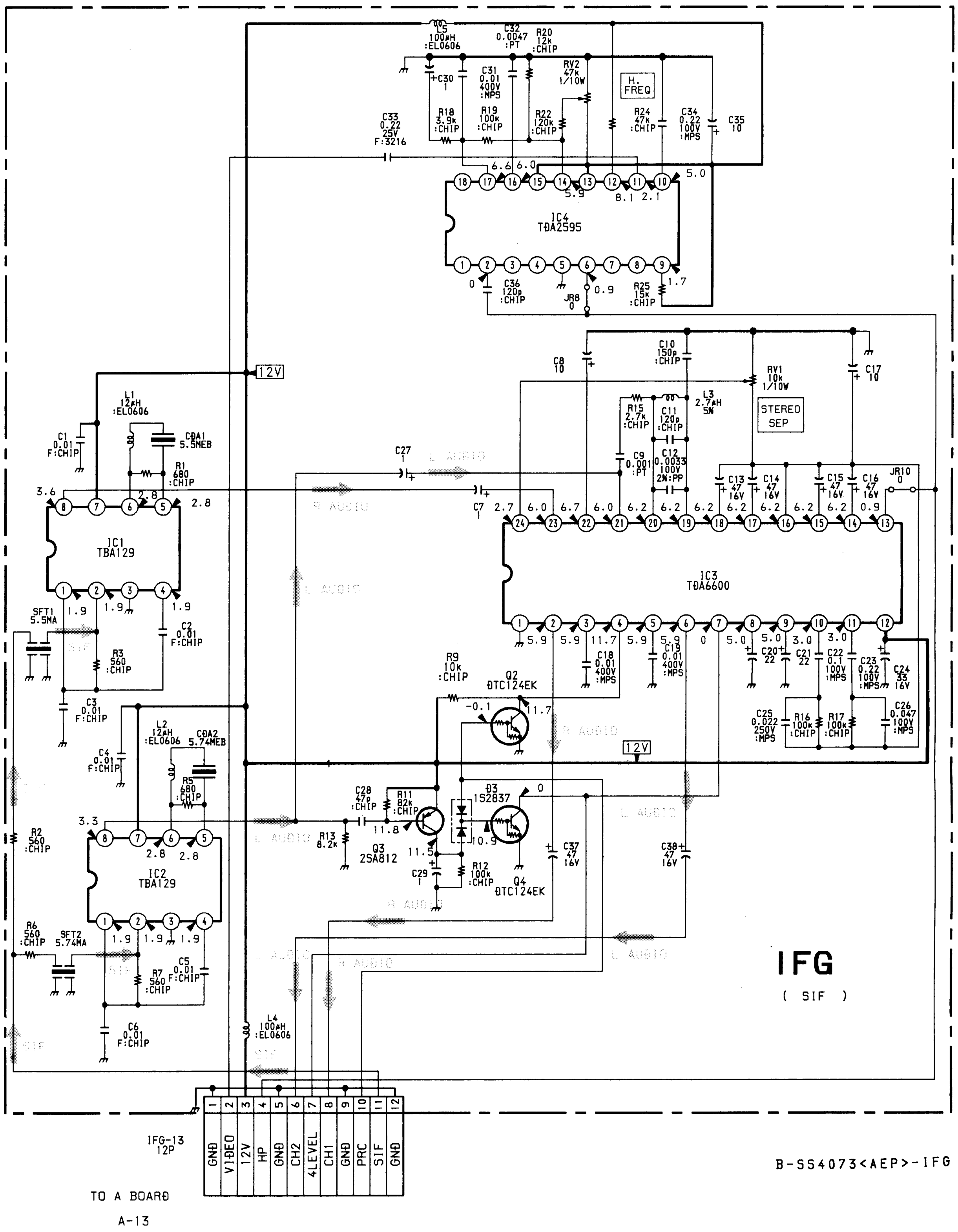
T
T
T

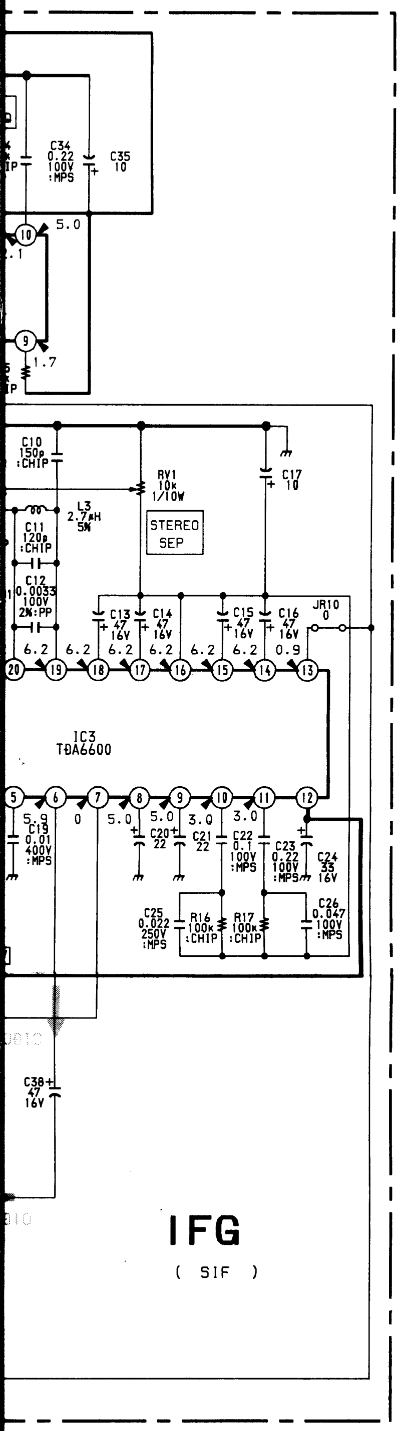
VE
EASURING
VE
EASURING
VE
EASURING
CT
CT
CT
CT
CT
CT
CT
CT
CT
CT
NG VOLTAGE REC
CT

KV-A2521Đ	KV-A2921Đ
220P	220P
390	390
68K 1/4W 1%	68K 1/4W 1%
120K 1/4W 1%	120K 1/4W 1%
820K 1/4W 1%	470K 1/4W 1%


IFG
(SIF)
L5 100μH :EL0606
C32 0.0047 :PT
R20 12k :CHIP
C30 1
C31 0.01 400V :MPS
RV2 47k 1/10W
H. FREQ
C33 0.22 25V F:3216
R18 3.9k :CHIP
R19 100k :CHIP
R22 120k :CHIP
R24 47k :CHIP
C34 0.22 100V :MPS
C35 10
IC4 TDA2595
C36 120p :CHIP
JR8 0
R25 15k :CHIP
12V
C10 150p :CHIP
C8 10
RV1 10k 1/10W
C17 10
L3 2.7μH SN
STEREO SEP
R15 2.7k :CHIP
C11 120p :CHIP
C9 0.001 :PT
C12 0.0033 100V 2N:PP
C27 1
C7 1
C13 47 16V
C14 47 16V
C15 47 16V
C16 47 16V
JR10 0
IC3 TDA6600
L1 12μH :EL0606
CDA1 5.5MEB
C1 0.01 F:CHIP
R1 680 :CHIP
IC1 TBA129
SFT1 5.5MA
C2 0.01 F:CHIP
R3 560 :CHIP
C3 0.01 F:CHIP
C18 0.01 400V :MPS
C19 0.01 400V :MPS
C20 22
C21 22
C22 0.1 100V :MPS
C23 0.22 100V :MPS
C24 33 16V
C25 0.022 250V :MPS
R16 100k :CHIP
R17 100k :CHIP
C26 0.047 100V :MPS
R9 10k :CHIP
Q2 DTC124EK
L2 12μH :EL0606
CDA2 5.74MEB
C4 0.01 F:CHIP
R5 680 :CHIP
C28 47p :CHIP
R11 82k :CHIP
D3 1S2837
R2 560 :CHIP
R13 8.2k
Q3 2SA812
C37 47 16V
C38 47 16V
C29 1
R12 100k :CHIP
Q4 DTC124EK
IC2 TBA129
R6 560 :CHIP
SFT2 5.74MA
R7 560 :CHIP
C5 0.01 F:CHIP
C6 0.01 F:CHIP
L4 100μH :EL0606
L AUDIO
R AUDIO
SIF
1 GND
2 VIDEO
3 12V
4 HP
5 GND
6 CH2
7 4LEVEL
8 CH1
9 GND
10 PRC
11 SIF
12 GND
IFG-13 12P
TO A BOARD A-13
B-SS4073<AEP>-IFG

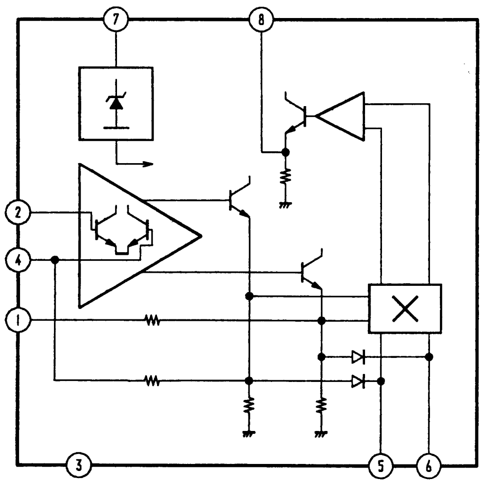
— IFG Board —

IC1	TBA129	5.5 DET
IC2	TBA129	5.74DET
IC3	TDA6600	SIF DET AMP
IC4	TDA2595	H.FREQ AMP
Q2	DTC124EK	SW
Q3	2SA812	SW
Q4	DTC124EK	SW
D3	1S2837	SW

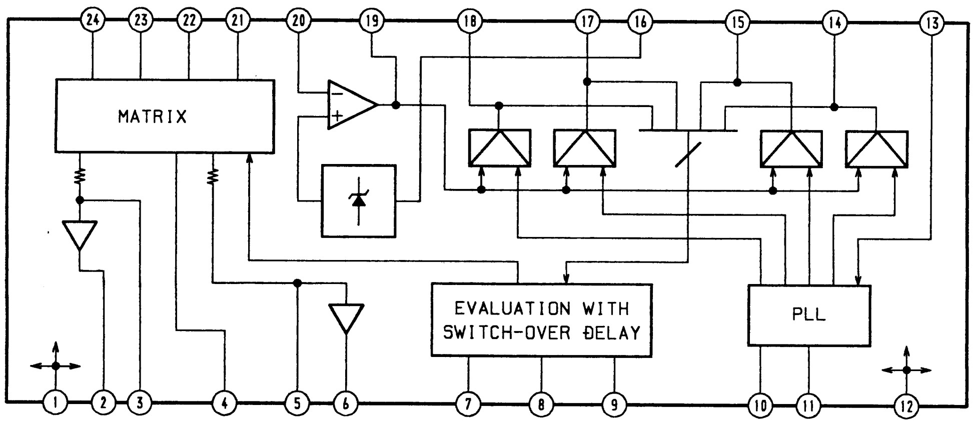

C34
0.22
100V
:MPS
C35
10
5.0
1.7
C10
150p
:CHIP
RV1
10k
1/10W
C17
10
L3
2.7μH
5%
C11
120p
:CHIP
STEREO
SEP
C12
0.0033
100V
2%:PP
C13
47
16V
C14
47
16V
C15
47
16V
C16
47
16V
JR10
0
6.2
6.2
6.2
6.2
6.2
6.2
0.9
IC3
TDA6600
5.9
0
5.0
5.0
3.0
3.0
C19
0.01
400V
:MPS
C20
22
C21
22
C22
0.1
100V
:MPS
C23
0.22
100V
:MPS
C24
33
16V
C25
0.022
250V
:MPS
R16
100k
:CHIP
R17
100k
:CHIP
C26
0.047
100V
:MPS
C38
47
16V
IFG
(SIF)

B-SS4073<AEP>-IFG

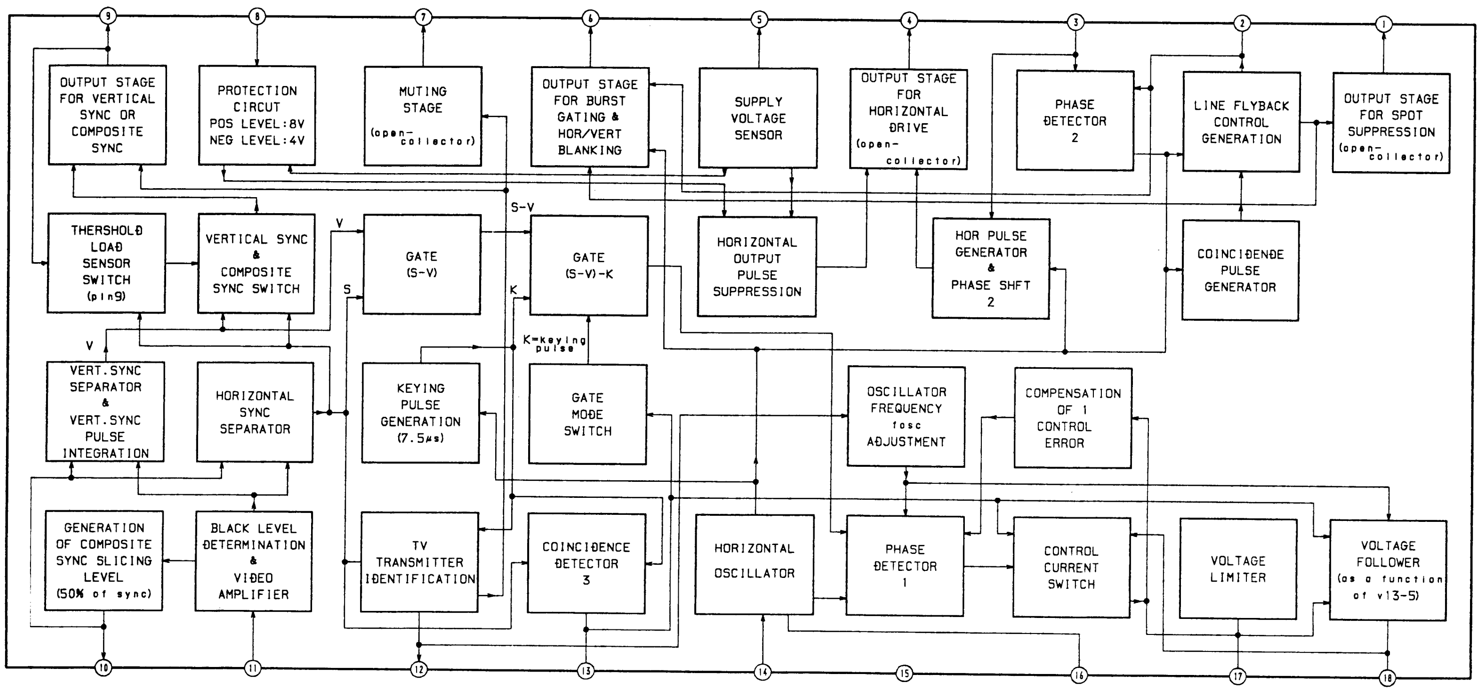
IFG BOARD IC1/IC2 TBA129



IFG BOARD IC3 TDA6600

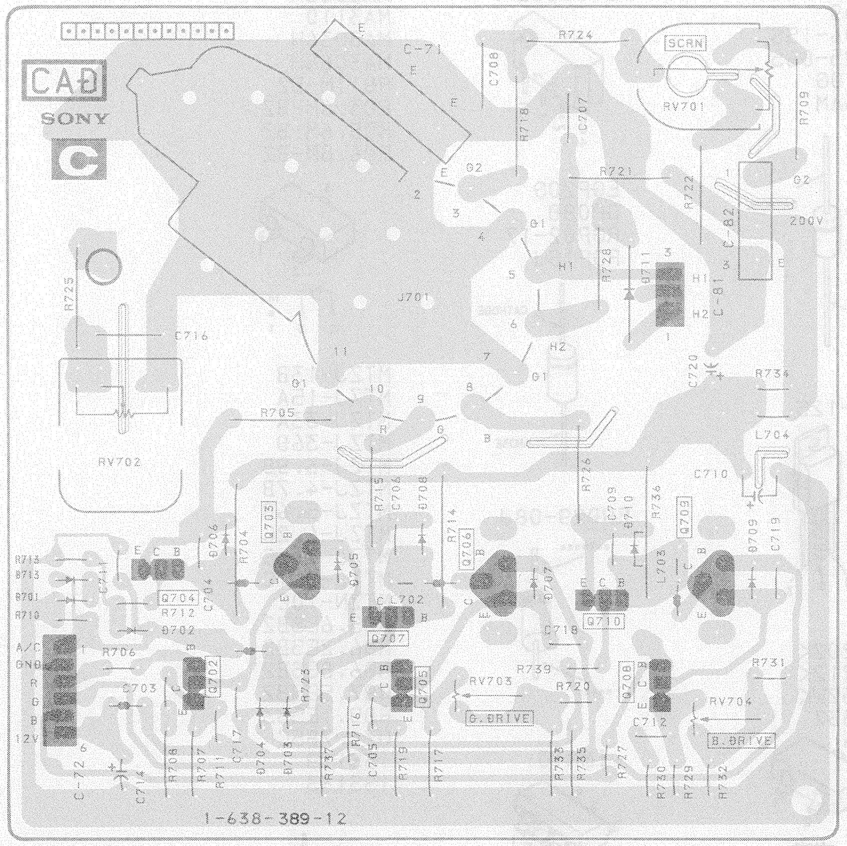

24
23
22
21
20
19
18
17
16
15
14
13
MATRIX
EVALUATION WITH
SWITCH-OVER DELAY
PLL
1
2
3
4
5
6
7
8
9
10
11
12

IFG BOARD IC4 TDA2595

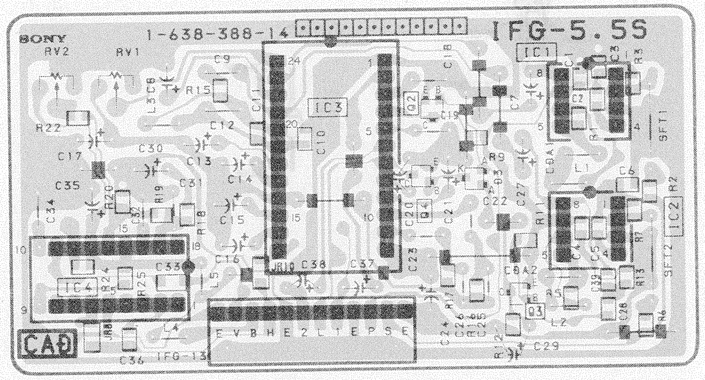

9
8
7
4
5
4
3
2
1
OUTPUT STAGE FOR VERTICAL SYNC OR COMPOSITE SYNC
PROTECTION CIRCUT POS LEVEL:8V NEG LEVEL:4V
MUTING STAGE (open-collector)
OUTPUT STAGE FOR BURST GATING & HOR/VERT BLANKING
SUPPLY VOLTAGE SENSOR
OUTPUT STAGE FOR HORIZONTAL DRIVE (open-collector)
PHASE DETECTOR 2
LINE FLYBACK CONTROL GENERATION
OUTPUT STAGE FOR SPOT SUPPRESSION (open-collector)
S-V
V
S
K
THERSHOLD LOAD SENSOR SWITCH (pin9)
VERTICAL SYNC & COMPOSITE SYNC SWITCH
GATE (S-V)
GATE (S-V)-K
HORIZONTAL OUTPUT PULSE SUPPRESSION
HOR PULSE GENERATOR & PHASE SHFT 2
COINCIDENCE PULSE GENERATOR
K-keying pulse
VERT.SYNC SEPARATOR & VERT.SYNC PULSE INTEGRATION
HORIZONTAL SYNC SEPARATOR
KEYING PULSE GENERATION (7.5μs)
GATE MODE SWITCH
OSCILLATOR FREQUENCY fosc ADJUSTMENT
COMPENSATION OF I CONTROL ERROR
GENERATION OF COMPOSITE SYNC SLICING LEVEL (50% of sync)
BLACK LEVEL DETERMINATION & VIDEO AMPLIFIER
TV TRANSMITTER IDENTIFICATION
COINCIDENCE DETECTOR 3
HORIZONTAL OSCILLATOR
PHASE DETECTOR 1
CONTROL CURRENT SWITCH
VOLTAGE LIMITER
VOLTAGE FOLLOWER (as a function of v13-5)
10
11
12
13
14
15
16
17
18

C [R·G·B OUT] IFG [SIF]

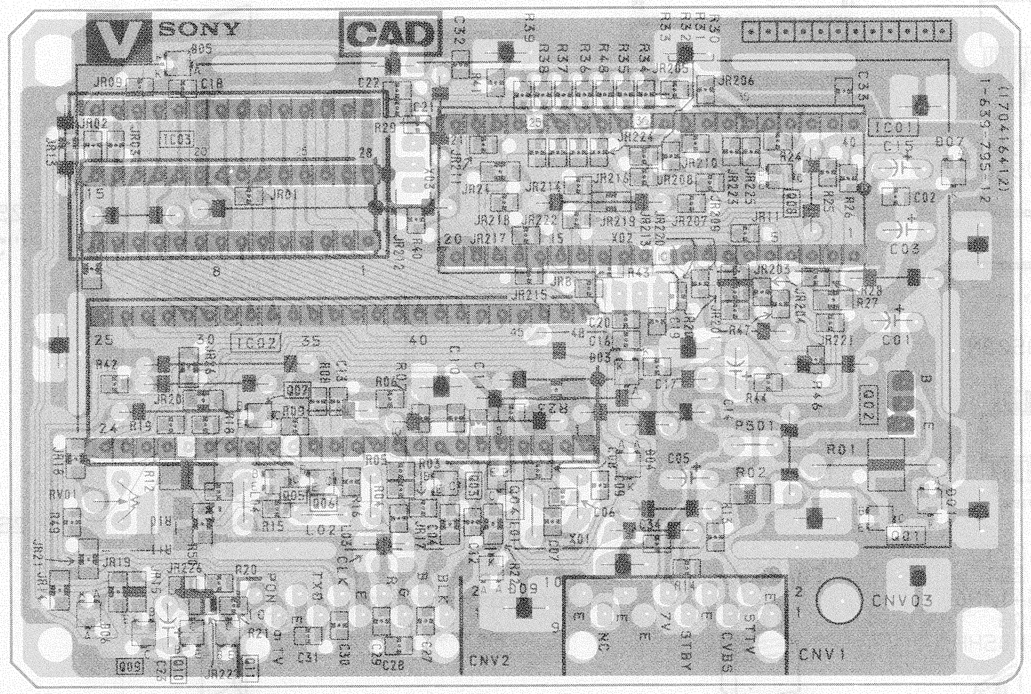
— C Board —


CAD
SONY
C
SCRN
RV701
RV702
J701
G.DRIVE
B.DRIVE
1-638-389-12

— IFG Board —


SONY
1-638-388-14
IFG-5.5S
CAD
IFG-13

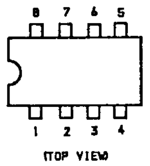
V [TELE TEXT]


V
SONY
CAD
1-639-795-12
CNV1
CNV2
CNV03

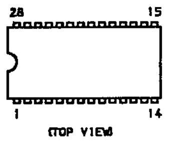
- ▨ : pattern from the side which enables seeing.
- ▨ : pattern of the rear side.

5-4. SEMICONDUCTORS

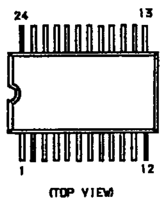
BA4558
NE5532P
RC4558P
SDA2546
TBA129
TDA1543
TEA2014A
TEA2031A


8
7
6
5
1
2
3
4
(TOP VIEW)

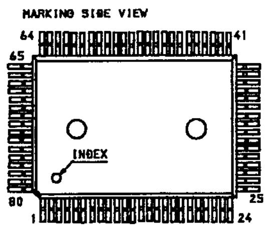
CXA1114P
CXK5864BP-10L
MAB8461P-W208
SAA5246P/E
SAA7280
TC5565APL-15L
TDA4580-V7
TDA6200
TEA2028B


28
15
1
14
(TOP VIEW)

CXD1175AM


24
13
1
12
(TOP VIEW)

CXD2011Q


MARKING SIDE VIEW
64
41
65
INDEX
80
1
25
24

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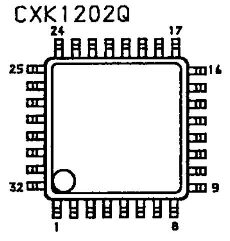
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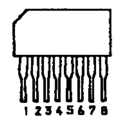

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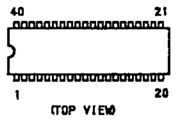
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(TOP VIEW)

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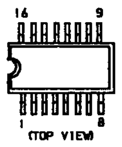
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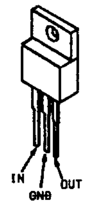

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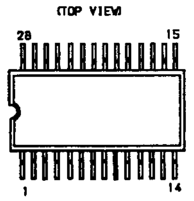
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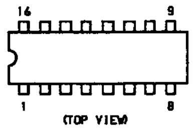
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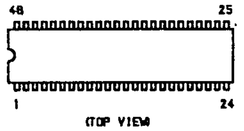
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(TOP VIEW)

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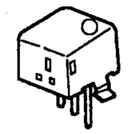

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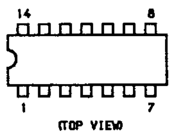
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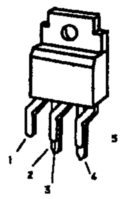

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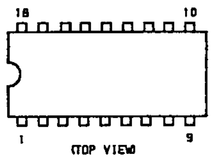
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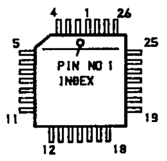
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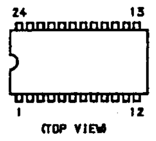
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(TOP VIEW)

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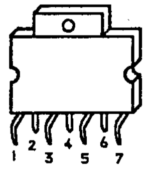

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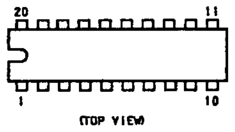
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(TOP VIEW)

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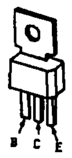

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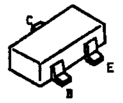

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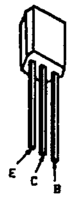

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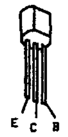

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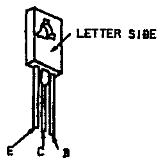
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E
C
B

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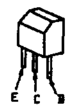

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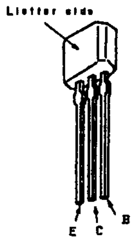
Letter side
E
C
B

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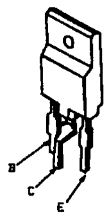

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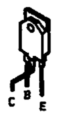

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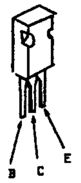

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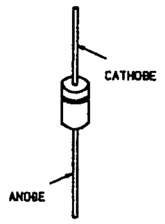
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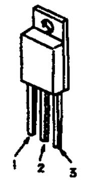
ANODE

CTU-12S



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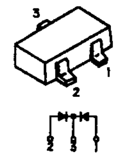

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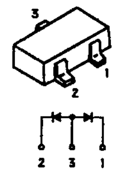

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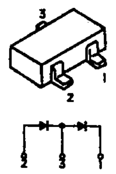

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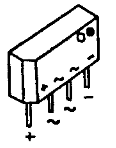

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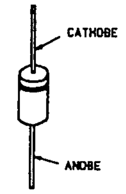
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ANODE

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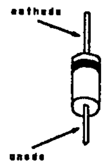
cathode
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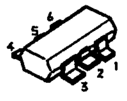

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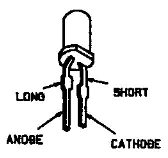
LONG
SHORT
ANODE
CATHODE

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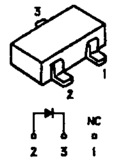
RD3.6M-B2
RD5.6M-B2
RD6.8M-B2



MTZJ-13B
MTZJ-15A
MTZJ-33A
MTZJ-36D
MTZJ-3.9B
MTZJ-4.7B
MTZJ-5.6B
MTZJ-6.2C
MTZJ-7.5C
MTZJ-9.1C
MTZN-10C
RD5.6ESB2
RD6.2ESB2
RD6.8ESB2
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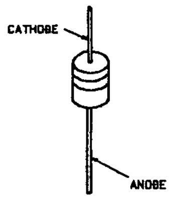
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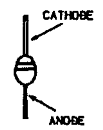
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6-1. CHASSIS (KV-A2123E)

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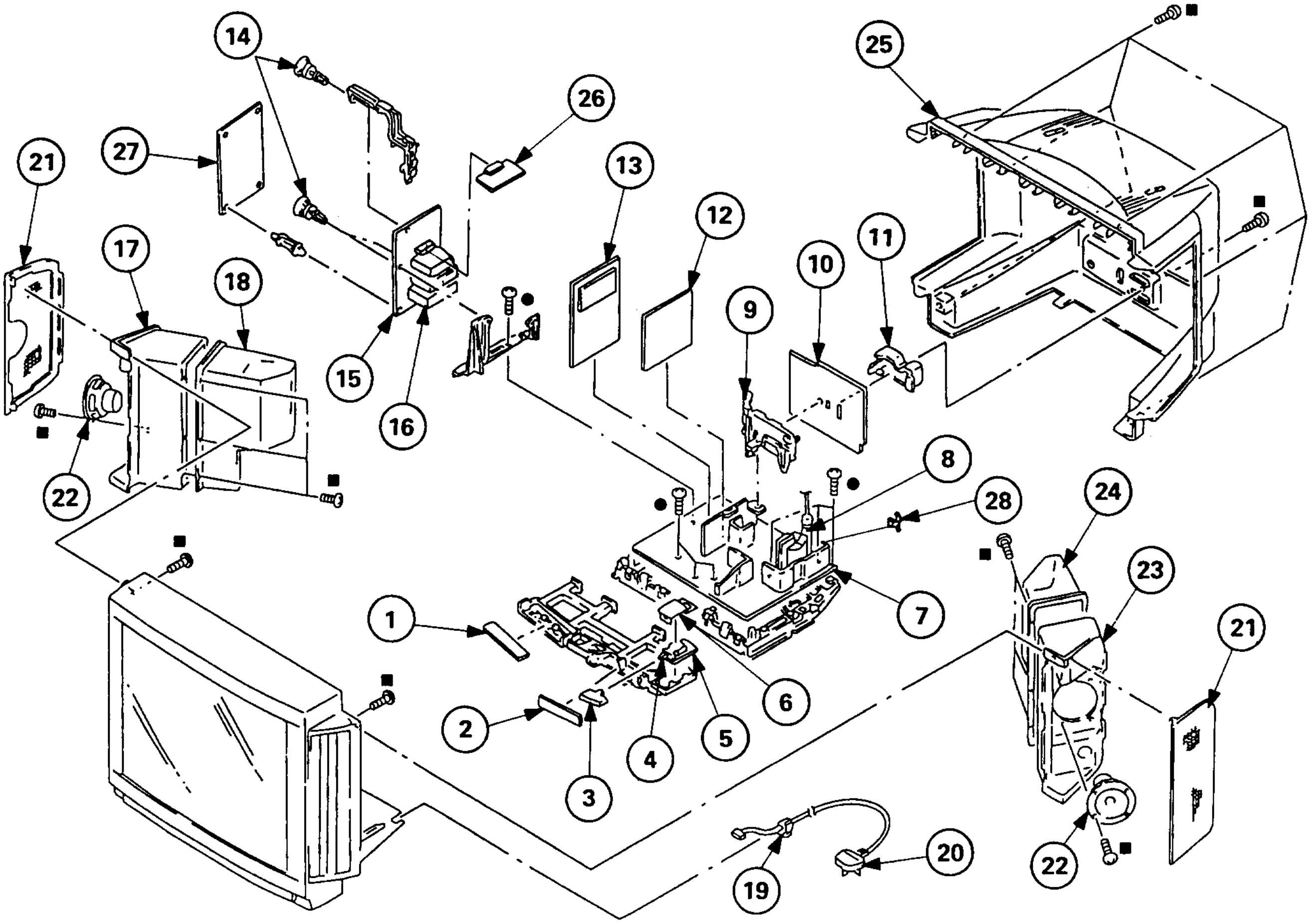
■ : BVTP4x16 7-685-663-79



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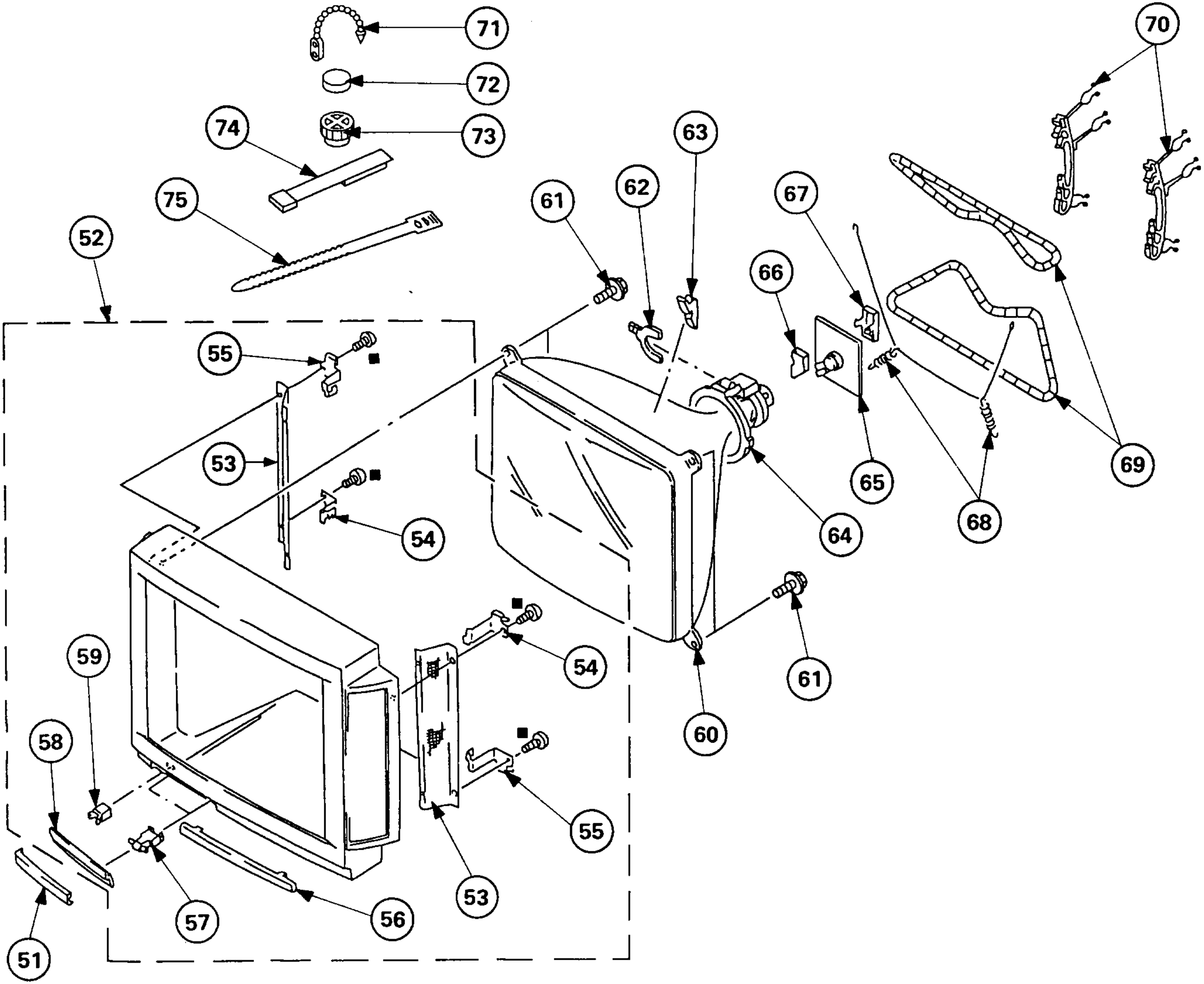
6-2. PICTURE TUBE (KV-A2123E)

■ : BVTP4x16   7-685-663-79



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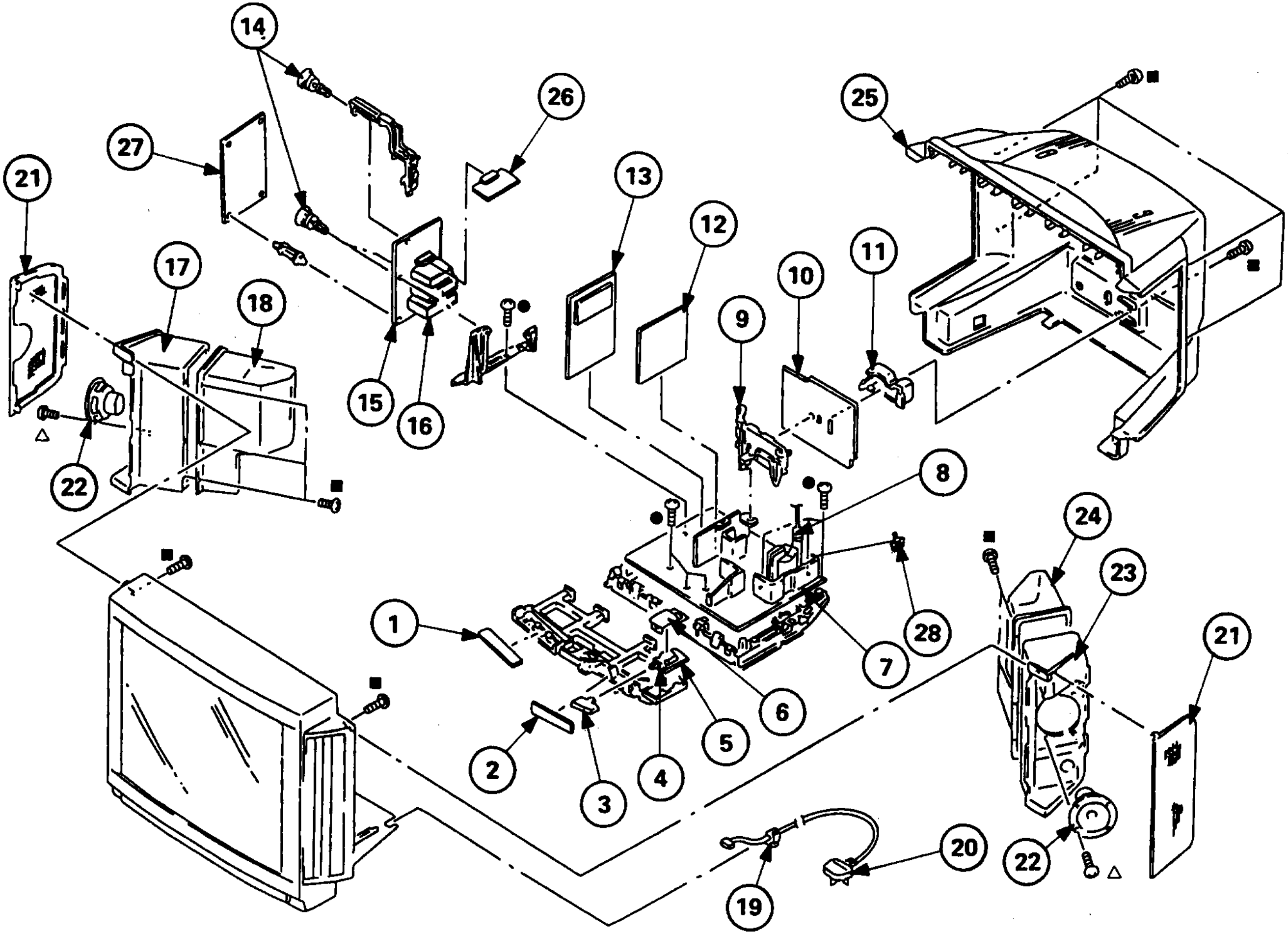
6-3. CHASSIS (KV-A2523E/A2923E)

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
△ : BVTP4x12 7-685-661-79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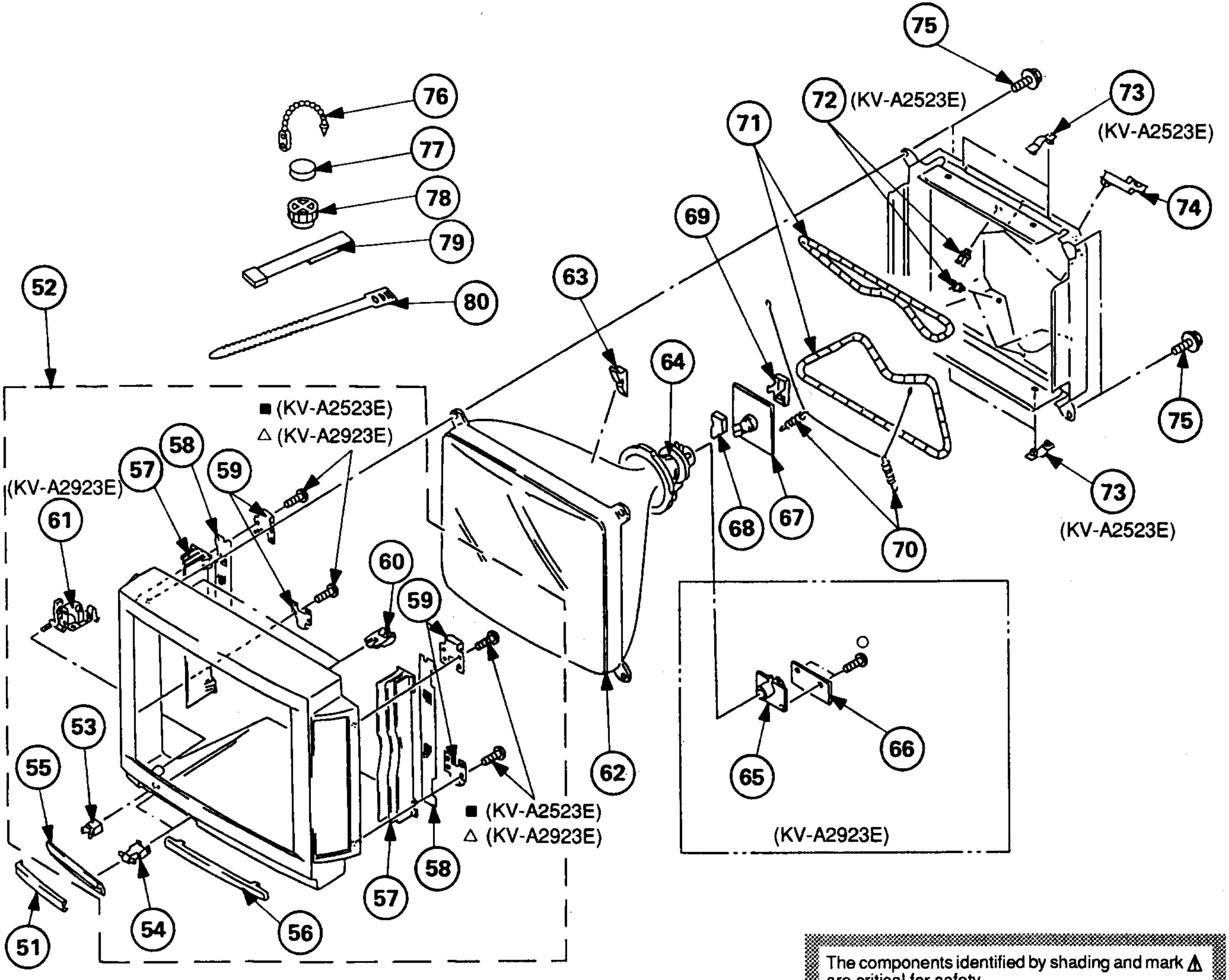
6-4. PICTURE TUBE (KV-A2523E/A2923E)

■ : BVTP4x16 7-685-663-79
△ : BVTP4x12 7-685-661-79
○ : BVTP3x8 7-685-646-79



75
76
72 (KV-A2523E)
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(KV-A2523E)
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■ (KV-A2523E)
△ (KV-A2923E)
(KV-A2923E)
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△ (KV-A2923E)
(KV-A2923E)
57
58
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56
51

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.